ABSTRACT

MCFARLAND, EDWARD SHAWYNE. Teachers' Perceptions of Professional Development: What do Teachers Really Want That Makes Them Willing to Change Professional Practice? (Under the direction of Dr. Matthew Militello).

Professional development is an essential tool for supporting and improving the work of teaching in our schools. The current study sought to understand which elements of professional development teachers perceive to be most important, and what specific characteristics about professional development influence their willingness to make changes in their professional practices. Q-Methodology was utilized to investigate the subjective opinions of public school teachers at one selected high school in North Carolina. Data analysis indicated four statistically significant factors: Individual Teacher Needs; Student and Teacher Learning; Collaboration; Supportive Structures and Environment. In addition, data emerged explaining how teachers view effective professional development and what it is about that professional development that encourages them to make changes in their teaching pedagogy. The findings from the study provide vital information about effective professional development for teachers, and also offer useful information to educational professionals, policy makers, and researchers about an important topic.

Teachers' Perceptions of Professional Development: What do Teachers Really Want That Makes Them Willing to Change Professional Practice?

by
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DEDICATION

I dedicate this dissertation to my partner, Johnny, and my family, who have always shown me unconditional love, real understanding, and great patience.

BIOGRAPHY

Edward S. McFarland was born in Greensboro, North Carolina, the son of Brenda and Spencer McFarland, with a twin brother and younger sister. He currently resides in Raleigh, North Carolina (NC).

Edward is a graduate of Northwest Guildford High School in Greensboro. Following high school, he attended The University of North Carolina at Greensboro, where he graduated in 1990 with a Bachelor's degree in Music. That same year, Edward began his career as a band director, teaching middle and high school band in the Franklin County and Guilford County School Systems for seven years.

In 1997, Edward was accepted into the Education Leadership program at the University of North Carolina at Greensboro, where he earned his Master's degree in School Administration in 2000. Upon graduating, he accepted an Assistant Principal position at Middle Creek Elementary School in Raleigh, NC, part of the Wake County Public School System. Edward served as the Assistant Principal for two years until 2002, when he was appointed principal of Aversboro Elementary School in Garner. In 2006, he was appointed Principal at Fuquay-Varina High School, serving there proudly until 2013. Currently, Edward is the Eastern Area Superintendent with the Wake County Public School System.

During his career, Edward has been privileged to work with amazing students and exceptional educators, yet still he desires to assist students and school leaders to become their very best. Edward's passion for teaching and learning comes from his belief that public education is one of the great equalizing institutions in the United States, one which opens doors and provides countless learning and career opportunities for all students.

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To the teachers who participated in this study, I would like to thank you for your time and your valuable expertise. More importantly, though, I appreciate you for the service you provide every day in working with your students.

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CHAPTER 1: INTRODUCTION

In order for schools to meet the expectations of the American people and serve as a national institution giving all students an equal chance at success, it is vitally important that public schools be able to meet the growing demand to provide all of the nation's students with the same rigorous learning experiences. For us to engage students at high levels across the spectrum, our teachers must be capable of far more sophisticated forms of practice than any time before (Sykes, 1999). As such, ongoing teacher learning and training is central to the idea of improving public schooling for all students. Guskey (2000) stated it best in noting that "schools will not improve unless the administrators and teachers within them improve" (p. 37). Thus, today's truly effective teachers must be highly trained, highly skilled, and always learning—the legacy of a public and equal education for all students depends on it.

American society expects its citizens to be highly educated and prepared to face the challenges of life in the 21st century. As a result, there are overwhelming demands being placed on educators to improve teaching and learning in order to meet the needs of all students. Today, schools are being threatened with sanctions, school vouchers are on the rise, political camps are asking for an increase in charter schools, and private schools for pay continue to flourish. Public schools are losing the prominence they once held in providing a great equalizing opportunity for all children.

To improve teaching, we must focus on the training of teachers. There is a clear link between high-quality professional development and high-quality teaching (Sykes, 1999), and it is a vital link that school leaders and teachers must understand. High-quality teaching practices should lead to better classroom instruction and, ultimately, result in improved

achievement for students. Sykes (1999) explains the link as a relationship between the learning opportunities provided to teachers and the eventual learning of students. His research supports the idea that teachers be engaged in sustained, long-term, rigorous, and content-specific training if we hope to improve teaching pedagogy and positively impact the learning of students.

The current study sought to understand the perceptions teachers have about effective elements of professional development and, more importantly, what motivates a teacher to actually make changes to their teaching practices. The researcher worked to find what teachers consider as effective and useful professional development, which is important information for school leaders and principals to know and understand if they are to support teachers' learning and growth. Principals must be aware of training that is meaningful to teachers, and they should understand what will challenge teachers to examine their classroom practices and actually make changes to instructional pedagogy using the ideas and techniques learned through professional development. Hence, implications from the current study could be important to school leaders. Furthermore, the current study sought to understand what previous research and current teachers say about effective professional development, in order to compare the two groups. Principals and other school leaders can use the information gleaned from the study to create environments that support and provide professional development that will be useful for teachers, thereby encouraging them to reflect upon their current practices and make adjustments in classroom instruction that will ultimately improve student achievement.

The current study searched for answers based on the premise that learning opportunities provided to teachers should eventually be reflected in the learning of students. Researchers have agreed that there exists a relationship between the quality and kinds of training teachers receive and their willingness to change classroom teaching and learning practices in order to improve student outcomes (Darling-Hammond, Berry, Haselkorn, & Fideler, 1999; Elmore & Burney, 1999; Sykes, 1999; Thompson & Zeuli, 1999). The current study explored the connection between what experts and teachers describe as effective teacher training and what it is about that training that ultimately encourages teachers to change their pedagogical practices.

By its examination of teachers' perceptions of the training they receive, the current study can offer insight to principals about their unique role with regard to instructional leadership—providing effective training to teachers. We know that professional development is essential and matters greatly to teachers, and principals are uniquely positioned to plan for and support the continued training of teachers. Specifically, the current research can help principals understand what teachers perceive as "effective" or "ineffective" when it comes to matters of pedagogical professional development. School leaders need to know if and how teachers' attitudes are influenced by the quality of instructionally-related professional development and support provided. Armed with such valuable information, the principal can tailor his or her instructional leadership in a way that will influence teachers to make changes to their teaching practices.

There is an overwhelming body of research about teacher training, principal leadership, and the impact of both on student achievement. This study examines and builds

upon the existing body of information about professional development by asking teachers what it is that causes them to synthesize all that they have learned and make targeted changes in their professional practice in order to better improve the learning of students. The answer was determined from an extensive literature review of research, and from the analysis of teachers' perceptions taking part in the study.

Statement of the Problem

All students today need new skills to survive and thrive in a global economy. Being an independent, lifelong learner and knowing how to access and analyze information, which is growing exponentially and is constantly changing, is far more important than rote learning of academic content. Students today must be prepared to apply what they have learned to new situations and challenges rather than merely recite what they have memorized (Wagner, 2008), and teachers must be prepared to teach them accordingly. In order to do so, teachers have to receive the appropriate support, such as effective professional development, so that they can successfully prepare students with the skills needed to flourish in the society of the future.

Today's youth are motivated differently than previous generations, and professional development for teachers must reflect that difference. Speaking about modern youth, Wagner (2008) wrote:

> Having grown up tethered to the net, young people today are curious multitaskers who hunger for immediate gratification and connectedness. They are creative and want to make a difference. They need and value mentoring and coaching from older

> adults— but only when those adults are respectful of their abilities and their dreams and can relate authentically, rather than from a position of power. (p. 257)

Today's students are markedly different from the students most teachers were prepared to teach, with learning needs that change rapidly and must be understood.

In most schools, the principal is responsible for providing professional development to address how teachers instruct their students and impact student learning. Notably, though, many schools lag in achievement, including the institutions that provide an abundance of professional development. So, the question remains: Why do a large number of teachers fail to make significant changes to how they teach in their classrooms, even after having completed enormous amounts of professional development? While many schools do provide ongoing professional development, and some also offer high-quality training, one answer could be that the professional development in many places is weak and does not meet the specific needs of the staff. Schools are not equipped to offer the long-term support needed for teachers to incrementally and successfully improve their teaching skills. With regard to instructional understanding and planning, the school leadership may be inconsistent and feeble. Principals and school leaders need to know how they can plan for and provide meaningful learning opportunities for teachers, so finding out how to improve teaching skills and the learning of students is more important today than ever before.

Finally, there is little information available on how a principal's curricular knowledge impacts a teacher's willingness to institute instructional changes inside the classroom. This study seeks to fill in some of that gap by finding out what specifically teachers perceive as effective training. We do know that the impact of leadership on student achievement is an

area that has been extensively researched in the last several decades (Di Vincenzo, 2008). Researchers have hypothesized about the direct impact between school principal leadership and student achievement (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Edmonds, 1979). The researchers emphasized the role of a principal as an instructional leader and explained that, through such a role, student learning is affected in a direct way (Hallinger & Heck, 1998; Witziers, Bosker, & Kruger, 2003). However, there is a dearth of research looking specifically at principals' behaviors around professional development and the impact those behaviors have on teachers' perceptions of professional development. An instructional leader who understands what teachers want and need with regard to solid professional training can notably impact teachers' willingness to implement instructional change in their classrooms and, ultimately, impact student achievement.

Purpose of the Study

The purpose of the current study was twofold. First, the study sought to understand which elements of professional development teachers perceive to be most important in providing effective training in schools. Second, the study examined what factors or characteristics about professional development influence teachers' willingness to make changes in their professional practices. To embark on such a project, one must first extensively research professional development in the context of public education. Thus, effective elements of professional development from the perspective of researchers, teachers, and school leaders were explored and defined as an essential part of the study. Once the elements of professional development were defined, the researchers used a Q-

Methodological design to capture teacher perceptions and attitudes about which elements of professional development are most important to them and most influential on their willingness to make changes in their professional practices.

According to Andrews, Berube, and Basom (1991), teachers' perceptions of their instructional leader is the single most reliable predictor of student achievement. Within a school, the principal is such a leader and assumes the primary obligation of providing curriculum and instructional training to teachers in order to create a high-quality school wherein all children can succeed. The professional development training offered at the school must be of the highest quality. The principal must strategically foster relationships with school stakeholders in order to build a climate where change in instructional practices will be sustained and nurtured. Such relationship-building creates a positive atmosphere in which teachers are more willing to examine their teaching practices and provide positive changes for the students' benefit (Andrews, Berube, & Basom, 1991).

Strategically-focused professional development is one of the most important tools a principal can use to significantly impact what teachers know and do with regard to teaching and learning inside a classroom. Guskey (2000) defines professional development as "those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students" (p. 16). Initially, the current study defined the knowledge and skills required for effective professional development as found through a robust review of literature. Next, the researcher explored more closely the "attitudes" of teachers about professional development, their beliefs about

the principal's leadership role in supporting professional development activities, and how both impact classroom pedagogy.

Research Question

Effective school literature indicates that there is a vital relationship between the principal, teacher, professional development, and student achievement. The literature review in the current study investigated professional development and explored what researchers and teachers consider to be effective elements of professional development. The study sought to answer one research question with regard to professional development:

1. What are teachers' perceptions about effective professional development that encourages them to reflect upon and make changes to their teaching practices?

This study then linked effective professional development research to teachers' perceptions about effective professional development in an effort to illuminate an area that school leaders, such as principals, might focus upon. Specifically, if principals know what research says about effective professional development, as well as understand what teachers perceive as effective professional development, then principals should be in a better position to plan and implement professional development that will encourage teachers to reflect upon and make changes to their teaching practices within schools.

Significance of the Study

High-quality, engaging professional development is at the heart of every proposal to better teaching practices and learning outcomes. Regardless of how schools are formed or

reformed, structured or restructured, the renewal of teachers' professional skills is considered fundamental to improvement (Guskey & Huberman, 1995). In addition, there is a definite link between what research deems as effective professional development and teachers' perceptions or attitudes about professional development, and how teachers' views can influence their willingness to make changes in their classrooms; to ensure the success of teachers and students, then, school leaders must understand the connection. Thus, the current study is significant in that it can highlight characteristics of superb, effective professional development according to both research and teachers' perceptions and illuminate how the two connect. Long-term, high-quality, and instructionally-focused professional development provided by principals can improve teachers' perceptions about the training offered at their school and ultimately increase teachers' willingness to use the things learned in the staff development sessions to improve student achievement. However, as stated earlier, one must first align what experts consider to be effective professional development with what teachers consider as effective professional development. Then, armed with a clear understanding and the best knowledge that research has to offer, the school leadership can move forward with planning and providing professional development and support in such a way as to address the needs of teachers, thereby reaping the most benefit.

This study is significant for school leaders. Research from the effective-school movement speaks to the issues of instructional leadership and how that leadership affects student achievement. Researchers including Chubb and Moe (1990), Andrews and Sober (1987), Brookover and Lezotte (1977), and Wagner and Kegan (2006) have studied the issues of leadership and the role of the principal in making schools effective. Teachers' ideas

and understandings about professional development, as well as their opinions on how the school leader supports and provides such staff training, can vary considerably.

According to Guskey (2000), the school leadership holds the utmost responsibility of articulating and mobilizing support and initiatives for improving teaching and learning. Understanding curriculum and instruction, improved achievement for all students, and teacher responsibility for student learning are required elements in building a successful school culture that prioritizes teacher training. Guskey (2000) claimed, "Schools that have the greatest success in reform efforts display a sense of collective commitment and responsibility for students, combined with a set of cultural norms that stress ongoing reflection and improvement" (p. 174).

Changing the way that a teacher "teaches" can, however, be problematic and difficult for school leaders. Too many principals look for easy answers, choose quick fixes, and make short-term plans around professional development, instead of engaging in the rigorous work of developing long-range plans and building school cultures that will invite and support innovative training and teaching. In fact, instructional change within schools today is often limited to structural modifications that have minimal impact on student learning. Professional development in many places is not much more than a series of loosely planned, 3-4 hour sessions focusing on wildly varying topics that have little to do with classroom instruction. Sessions that do focus on student learning are often one-day programs with little sustainability and generally spotty implementation that offer insufficient time for teachers to collaborate. Over and over, school leadership creates plans for improvement without understanding researched-based professional development or what teachers want that will

improve teaching and learning. Conversely, the instructional leader who wishes for sustained change with regard to teacher practices and real improvement in student achievement will be mindful of such common pitfalls and build a school community committed to the long-term process of finding and implementing professional development that fosters real change in classroom pedagogy.

It is important for a principal to understand how he/she can impact teacher and student learning by using a professional development model that meets the needs of teachers and adheres to standards widely acknowledged by researchers as essential for success. A well-planned and high-quality professional development program can improve teacher perceptions about the professional learning being offered in a school. Then, teachers may be more willing to implement changes within their classrooms and ultimately improve student achievement, using what they have learned from the professional development sessions offered by the school leadership.

The current study is significant for researchers in that its findings can be used as a source of information about the impact principals can have on a school if they understand effective elements of instructional pedagogy according to the science of professional development, and if they understand what teachers perceive as effective professional development. Teachers are influenced by the training their school leader offers, whether positive or negative, and it has a distinct bearing on teachers' willingness to change their teaching strategies and ultimately improve student achievement. However, there is little research about the impact that a principal's planning and delivery of professional development that is in alignment with what teachers perceive as "effective" actually has on

teachers' willingness to modify their professional practices; the current study helps to fill that gap.

The scope of the current study was limited to teachers in one high school within a single North Carolina school district. Building on the current study, future researchers could expand upon the study using teachers throughout the United States. To fully understand teachers' perceptions about professional development, other research methods would need to be used and additional studies conducted.

Overview of the Research Methodology

The current study examined teachers' perceptions of professional development at a high school in North Carolina. Q-Methodology was utilized to answer the research question by focusing on the subjective opinions of teachers using a Q-Sort. Q-Methodology was conducted in five stages: 1) assembling a collection of statements called the concourse; 2) selecting a representative sample of statements from that concourse called a Q-Set or Q-Sample; 3) selecting participants called a P-Set or P-Sample; 4) facilitating the card sorts conducted by participants; and 5) analyzing and interpreting the results. A discussion of the methodology and methods is discussed in great detail in Chapter 3.

Conceptual Framework for Professional Development

Educators, policy makers, and researchers are always searching for ways to make schools most effective. Blase (1987) spoke about conditions of effective schools and indicated that school leadership played an important role. The Virginia Education

Association and Appalachia Educational Laboratory conducted one of the few studies on teachers' perceptions of the building administration in 1991. The findings indicate that success in school effectiveness appears to be connected to the instructional leadership of the principal in the building. Instructional leadership is the most important role of the school principal, and knowing what teachers need and want with regard to instruction falls under the principal's leadership. Actions that principals implement in working toward school improvement are vital in making changes that will last in today's public school educational environment. Additionally, there is evidence to suggest that effective schools have strong leaders, along with staff members who have the same positive perception of their leader and the instructional leadership that he/she provides. Thus, good professional development should be designed cooperatively by administrators and teachers, with implementation focusing more explicitly on student learning as the ultimate outcome (Sykes, 1999).

The idea of improving teacher training models is most important to teachers, principals, and their collective work. Administrators and teachers want their schools to be high-achieving. Therefore, it is vitally important for practitioners to understand what effective schools do with their professional development and how that work is perceived by the teachers. Effective school studies have identified instructional leadership behaviors of principals as an important characteristic of high-achieving schools. Also, teachers' perceptions of instructional leadership behaviors are stressed in many studies as being important in the schools where students are improving. Schools that are successful and effective are those with a competent and caring leader who understands instructional practices (Darling-Hammond, 2010).

Working in concert with the staff and school community, and using Sykes' conceptual framework, a principal can construct a professional development plan that will meet teacher needs, positively impact teacher perceptions of professional development, and lead to student improvement. Sykes (1999) lists five components of an effective teacher professional development framework for use in schools:

1. Use the teacher-student learning connection as a criterion for the selection and design of teacher professional development.
2. Embed teacher professional development in the specific content of the student curriculum.
3. Integrate examination of student learning, using multiple sources of evidence into teacher professional development.
4. Include attention to student learning in teacher professional development associated with the implementation of curricular and instructional innovations.
5. Reference both formative and summative evaluation of teacher professional development to student learning.

Figure 1.1 illustrates the five principles of the Sykes (1999) framework that should serve as criteria for selecting and building professional development plans and activities with teachers in schools. This study will use the Sykes (1999) model to categorize and frame statements derived from the literature review about teachers' perceptions of effective staff development, as well as to guide the overall study and interpret the findings.

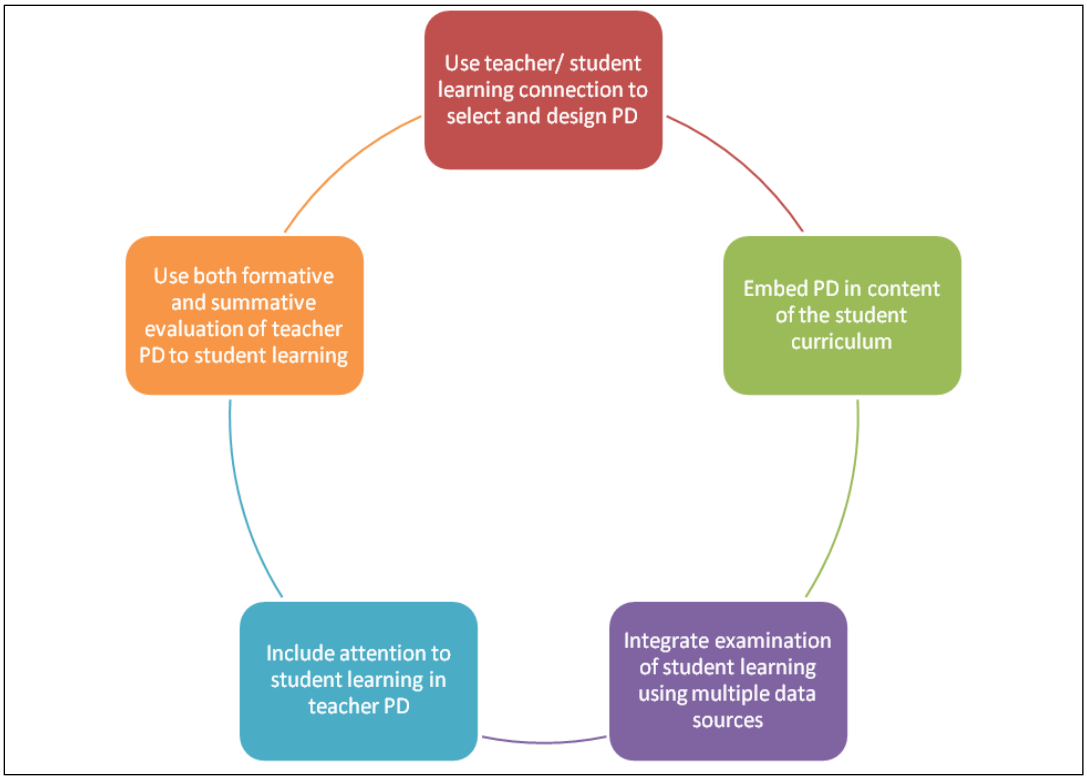

Figure 1.1: Sykes' (1999) Conceptual Framework

The current study sought to clarify teachers' understandings and expectations for effective professional development, as established through an extensive literature review of relevant research and as gleaned from teacher input in the form of the Q-Sort and subsequent interviews. Next, the current study sought to identify how school leaders can use professional development to influence teachers' instructional practices and to what extent such an influence can impact a teachers' willingness to make changes in their professional practices.

We know that students' academic performance depends heavily on the role the teacher plays in the day-to-day planning and implementation of classroom instruction. We also know that principals can make a difference in student achievement through the kinds of

professional development activities he/she designs to improve the teaching-learning process in the classroom. However, a gap in the knowledge on instructional leadership is seen in how teachers' perception of professional development is connected with the school leader's instructional guidance, as well as in how such leadership can impact a teacher's willingness to make changes in the classroom; the current study attempted to begin filling in that gap.

It is evident that classroom practices around teaching and learning will improve when teachers' understandings of content and delivery methods are broadened. Moreover, principals can only support such changes if they understand teachers' curriculum and instructional needs. But, if teachers do not respect the principal's ability to organize and plan effective professional development, they may simply dismiss the ideas the principal is attempting to present and continue conducting business as usual inside their classrooms.

Principals' instructional leadership behaviors are important in influencing teacher behaviors that will subsequently impact student achievement. Teachers' perceptions of professional development have also been recognized as vital to determining whether or not teachers are willing to make changes in their classrooms to impact student achievement. The current study is important in its examination of how school leaders use professional development to influence teachers' instructional practices, and to what extent principals' influence affects teachers' willingness to make changes in their professional practices inside their classrooms.

Organization of the Study

In Chapter 1, the researcher provides an overview and brief summary of the background of the study, the purpose of the study, the need for the study, and the research methodology.

In Chapter 2, the researcher reviews elements of effective professional development as well as the limited data on teacher perception in literature about the school principal and his or her leadership around professional development.

In Chapter 3, the researcher completes a detailed description of the research design that was used to answer the two research questions.

In Chapter 4, the researcher details the findings of the study.

In Chapter 5, the researcher discusses the research questions, findings, and implications of the study on future research.

Chapter Summary

There is a need for high-quality and well-planned professional development for teachers, as it is a necessary element for providing substantial, long-term instructional change in schools. The current study outlined the elements of good quality professional development according to research and teachers' perceptions using a model presented by Sykes (1999) as the framework. Principals who understand and use Sykes' framework will demonstrate behaviors that provide influential instructional leadership which has the power to change teaching practices inside a school. It is hoped that, in schools where principals understand teacher perceptions, understand the research, and understand Sykes' framework of

professional development, principals will use those tools to model effective instructional leadership; in addition, it is hoped that teachers will have a more positive perception of principals' leadership and be more willing to make substantive changes in their classrooms in order to improve student achievement.

Sykes (1999) offers some key elements of professional development found in schools where teacher perceptions of professional development is high and where principals plan and use effective professional development. Specifically, effective professional development must take into consideration and do the following: how students and teachers learn during the selection and design phase; embed the teacher training within the already established student curriculum; examine student learning using multiple sources of data; pay attention to how and if students are learning when implementing new initiatives; and use both formative and summative evaluation of the professional development on student learning. Other research similarly indicates that effective professional development is primarily on-site, intensive, long-term, collaborative, and job-embedded.

Findings from the current study may be helpful in persuading school leaders to pay greater attention to the core relationship between teacher professional development and student achievement. From the current study, programs could perhaps be developed that encourage principals to offer meaningful professional development which reflects teacher perceptions and research-based ideas about excellent professional development, thereby creating conditions that lead teachers to be more willing to make changes in their classrooms and increase student achievement.

All major instructional changes that occur in a school occur in the classroom, at the hands of teachers. Principals, if they ever expect to make significant strides with real school improvement, must therefore understand how to influence the teachers' willingness to do the work of change in their classrooms. Understanding what teachers need and want and how school leaders can use professional development to meet those needs and wants is a skill that every principal must understand and use to ensure significant pedagogical change reaches the classroom.

CHAPTER 2: LITERATURE REVIEW

Introduction

The purpose of the following chapter is to review literature associated with effective elements of professional development and the principal's instructional leadership role, one which is most important to supporting and sustaining teacher professional development in schools. This study intended to better understand what elements of professional development researchers believe are important to provide for teachers in schools seeking to improve the academic gains of their students. Once the elements of professional development were defined, the researcher further explored specific elements about professional development and instructional leadership that most influence teachers' willingness to make changes in their professional practices using a framework designed by Sykes (1999). A necessary premise in the current study is that the principal is uniquely positioned to promote change within a school. Understanding the principal's distinctive role in supporting and guiding instructional improvement inside the school through effective professional development was the starting point for reviewing the relevant literature. Next, literature and research on the following topics were examined to further the discussion about teachers' perceptions of professional development:

- Teacher Perceptions of Professional Development
- The Need for Professional Development
- Effective Elements of Professional Development
- Structural Changes Required to Support Professional Development

- Collaboration in Professional Development
- Principal and Teacher Attitudes about Effective Elements of Professional Development

Instructional Leadership: The Principal's Unique Role

Principals are uniquely positioned in schools to support the learning of both teachers and students, as they are empowered to make sweeping changes in schools to improve the overall school performance. Literature has suggested that strong instructional leadership by the principal, using high-quality professional development, is one of the most important tools to help teachers in becoming more effective, refining skills they have learned, and developing new skills (Wood & Lease, 1987). Participation by teachers in the professional development process promotes ownership, commitment, and trust, all of which are important to improving instruction (Withall & Wood, 1979). The only goal that should truly matter as the core focus for any school leader is improving student learning. To do so, coaching teachers and improving their instruction is essential for principals, and it should be where they spend most of their time and effort. Schools will not improve unless the administrators and teachers within them improve (Wise, 1991), an imperative that all school leaders must recognize, understand, and address.

Much has been written about the influence of principals and teachers on student achievement. There continues to be a debate among researchers as to whether leadership has a direct or indirect effect on student academic success, and if instructional leadership is a viable area to focus on for principals wishing to enhance academic achievement in schools

(Ross & Gray, 2006). Researchers addressing the topic of instructional leadership have identified significant relationships between leadership practices and student learning. Evidence exists concerning certain principal and teacher behaviors that establish a direct relationship to student achievement (Nettles & Herrington, 2007). While the principal and teacher have many diverse roles, their primary, mutual responsibility is to facilitate effective teaching and learning, with the overall mission of enhancing student achievement. The principal as instructional leader occupies a pivotal role in offering education for the teachers so that they can provide learning for the students (O'Donnell & White, 2005).

Researchers have agreed that principals are required to act in such a way as to be effective instructional leaders with regard to planning and implementing a plan of professional development that teachers will accept and support. The main behaviors involved in instructional leadership are the establishment of comprehensible expectations, the monitoring of instruction through observations, and the implementation of professional development to align with curriculum and assessments (Ovando & Ramirez, 2007). However, there has been some disagreement on the definition of "instructional leader" and the specific actions that make a principal such a figure.

In the past 50 years, the role of the principal has changed from that of a manager to an instructional leader. While a manager is concerned with putting plans into operation and maintaining the current organization's status quo, an instructional leader is concerned with the planning, implementation, evaluation of needs, and continuous improvement of the teaching and learning process. A good instructional leader maintains a specific focus on improving the skills of teachers to better meet the learning needs of the students. The

effective school leader works to construct an instructional plan which is then used as the improvement blueprint for the school to follow. It is developed by observing what is currently occurring in a school and foreseeing the future, designing a plan that will positively influence teaching and learning. The instructional leader then implements and coordinates the instructional change process within the school based on the instructional plan (Kersten & Sloan, 1985).

Similarly, Grogin and Andrews (2002) characterized an instructional leader as someone who "gives instruction the highest priority, rallies and mobilizes resources to enable the accomplishment of [instructional] goals, and creates a climate of high expectations for high academic achievement and respect for all students" (p. 239). The instructional leader is a key player with regard to constructing a plan of professional development, as well as also supporting teachers by positively nurturing and influencing their attitudes about the changes required to implement the plan and, thus, improve the curricular work inside the school. Glickman (1985) researched the principal's role with instructional supervision and defined five supervisory tasks that have the most direct, meaningful impact on instructional improvement and the practice of teaching in the classroom: direct assistance, group development, staff development, curriculum development, and action research. School leaders who most effectively integrate these tasks into the workings of a school can connect teachers' needs with the school's improvement goals and thereby positively influence teachers to make changes in their classroom teaching practices.

Pajak (1989) examined and defined school leadership practices in high-performing schools, and listed those practices in order of importance as ranked by principals working in the studied schools:

1. Communication
2. Staff development (professional growth)
3. Instructional program (improvement)
4. Planning and change (collaborative work)
5. Motivating and organizing (shared vision)
6. Observation and conferencing
7. Curriculum
8. Problem solving and decision making
9. Service to teachers (support for teaching and learning)
10. Personal development (reflection on beliefs, abilities, actions)
11. Community relations
12. Research and program evaluation

It is important to note that both Glickman (1985) and Pajak (1989) identify professional development and the improvement of the instructional programming as critical practices required by school leadership to improve teaching and learning in schools.

Fullan (1991) discovered in his research that "schools operated by principals who were perceived by their teachers to be strong instructional leaders exhibited significantly greater gain scores in achievement in mathematics than did schools operated by average weak instructional leaders" (p. 156). Sergiovanni (1986) identified successful school

leadership activities by the principal as activities that were directed toward the improvement of teaching and learning for students. He noted that the leader assumes an active role in enhancing the learning environment, but also acts as an enabler of others to function more effectively, writing, "one rarely finds an effective school without an effective leader" (Sergiovanni, 1986, p. 7).

Fullan (1997) emphasized the importance of establishing a professional culture, noting that, in addition to concrete curriculum projects, the instructional leader must pay attention to the professional culture of the school, focusing on the interrelationship among curriculum, instruction, and assessment by fostering a professional learning community among the staff. The particular leadership style of the school administrator has been researched as a major factor that contributes either positively or negatively to the institutional effectiveness in terms of climate and morale. Such an idea of "leadership style" is a contributing factor to teachers' attitudes about the principal and the influence that the principal may exert in leading the school with regard to instructional practices.

Sykes (1999) argued that "schools can be influenced by their collective norms and traditions, social relationships, and the organizational structure of the workplace" (p.157). In other words, the principal can influence a school to be more or less collegial; more or less open to innovation and outside influence; more or less inclined to scrutinize practice and results; more or less likely to involve the teachers in decision making; and more or less inclined to hold the staff to shared ideals, standards, norms, and values. The principal can have a strong and positive impact on the culture of the school, creating an atmosphere where professional development is an integral part of how a particular school does business.

Principals acting as instructional leaders do make a difference in student achievement. In order to help improve student performance, they focus on "doing the right things" (Andrews, Basom, & Basom, 1991, p. 97). Principals must communicate and teach these "right things" so that teachers can learn about and understand them as they work to build an instructional culture of success. The principal, as the instructional leader, constantly communicates the idea that all teachers can improve and all students can achieve. Then, the principal provides the training necessary for teachers to gain knowledge on how to improve their craft, enabling all students to thrive. Success breeds success; thus, by making smart decisions with regard to instructional training, thereby enabling their own success in following a clearly defined instructional vision that focuses on improved learner outcomes, principals and teachers can, in turn, enable students to be more successful. The best administrators lead the faculty and school community in establishing and implementing any school-wide effort of instructional change, thereby serving as cheerleaders; they call for a clear, visible commitment to the innovation and change needed to move forward and support the faculty along the way. Teachers require such strong, committed leadership if they are expected to collectively endorse training offered to them by the school, especially if it is hoped that they will then put that training to use in their classrooms.

Professional development must be an integral part of that clear, visible commitment to innovation and change described earlier. Obstacles that block moving forward with student learning will have to be removed. Many school leaders try to do too much with professional development, which ultimately leads to failure as Guskey (1995) cautioned:

> There is no easier way to sabotage change efforts than to take on too much at one time. In fact, if there is one truism in the vast research literature on change, it is that the magnitude of change persons are asked to make, is inversely related to their likelihood of making it. (p.119)

Guskey (1995) recommended thinking "big" with regard to instructional planning, but starting small with the actual training and implementation. Arguably, approaching teacher learning in small, incremental steps will not have a huge and significant impact immediately, but will lead to change over time and provide the scaffolding of support that teachers need to feel positive about what they are doing. Using a step by step process as Guskey suggested will also provide teachers with measurable goals to benchmark their journey toward improvement. In addition, setting and attaining short-term goals will help teachers develop a more optimistic attitude and increase their willingness to make changes in the classroom. Finally, long-range plans that allow for slower integration gives teachers time to reflect on, collaborate, and practice what they are learning before they implement changes in the classroom. Doing too much too soon, on the other hand, can be overwhelming and lead to teachers' rejection of changes.

Concurring with Guskey, researchers Hawley and Valli (1999) also concluded that principals must provide teachers with time to collaborate and practice what they are learning, emphasizing the importance of maintaining manageable change with teaching and learning. They wrote, "Educators must practice what they learn, for too often they are asked to learn new things they cannot act on because there is no organizational commitment to continuous experimentation and improvement" (Hawley & Valli, 1999, p.144). Principal-level support is

essential in any efforts toward instructional change, in order to bolster teacher attitudes and create positive feelings about the change process. Principals must provide teachers the time and opportunities needed to assess what they have learned and determine if, and why, some new practices might be better than others. They also need time to see other teachers as they model new ideas before they then work to implement those observed practices slowly into their own classrooms. Simply put, quick fixes will not work, and the support of the principal as instructional leader is crucial in working toward real pedagogical change.

Dinham (2005) investigated the practices of principals and found seven characteristics and behaviors that effective principals exhibited when working to achieve academic success with students:

1. *External awareness and engagement*. Principals with excellent academic success are open to change and innovative ideas. They are aware of internal and external factors and use them to the advantage of the school.
2. *A bias toward innovation and action*. Effective principals are risk-takers and embrace change. They empower and support others.
3. *Personal qualities and relationships*. Effective principals are found to have positive attitudes and the ability to motivate others. Such instructional leaders assist and guide others, while exhibiting good communication and listening skills and acting as professional role models.
4. *Vision, expectations, and a culture of success*. Effective principals have high expectations of themselves and others, and they take opportunities to recognize

teachers and students for their successes. The vision and purpose of work for these individuals are clear and precise.

5. *Teacher learning, responsibility, and trust.* Effective principals foster leadership qualities in teachers, and they value and provide opportunities for staff learning as well as their own. Mutual respect between an effective principal and his or her teaching faculty is important and valued.
6. *Student support, common purpose, and collaboration*. Student well-being is the priority of effective principals. Establishing a safe and trusting environment that is conducive to learning for both teachers and students is essential, and providing teachers with time to collaborate and work together is vital if teachers are to succeed.
7. *Focus on students, learning, and teaching.* Effective principals set clear guidelines and communicate effectively to clarify procedures, and their primary considerations are always the students, teaching, and learning.

Marzano, Waters, and McNulty (2005) conducted a meta-analysis study examining the impact of leadership on student achievement. They analyzed 69 studies on the role of principal leadership and students' academic success from1978 to 2001, in order to determine if a relationship between the two existed. The researchers defined 21 categories of leadership responsibilities and found that situational awareness had the strongest relationship with improved academic achievement (Marzano et al., 2005).

Situational awareness as a characteristic of leadership can be defined as attentiveness to the "details and the undercurrents regarding the functioning of the school and their use of

this information to address current and potential problems" (Marzano et al., 2005, p. 60). The second strongest leadership responsibility linked to academic success was flexibility, which Marzano et al. (2005) defined as the ability to adjust "leadership behavior to the needs of the current situation" (p. 49) and being "comfortable with dissent" (p. 49). Instructional focus and staff development are negatively impacted when the principal does not behave in such a way as to remain attentive to the learning needs of teachers. Hence, while still focused on the overall needs of the school, staff development plans from year to year should be flexible enough to adjust for the successes and failures exhibited by the teachers, in students' responses, or in achievement of learning outcomes with regard to the newly implemented teaching practices.

Mackey, Pitcher, and Decman (2006) found that principals displaying effective academic leadership were able to meet students' basic, academic, and emotional needs, as well as the teachers' instructional, professional, and emotional needs. In schools where teachers and students are achieving success, they found that the following characteristics related to instructional leadership were displayed by school principals:

1. Supporting and reinforcing teacher's educational approaches
2. Visiting classrooms frequently to observe instruction and student learning
3. Seeking and providing feedback on educational practices and approaches
4. Analyzing and using data to improve curriculum and teaching (Mackey et al., 2006).

Robinson, Lloyd, and Rowe (2008) researched different types of leadership and their respective influence on students' learning; the study consisted of a review of various

published studies examining the impact of leadership on student learning outcomes. The objective analysis indicated that the more the leader focused on and guided student instruction and learning, the greater the impact on student achievement (Robinson et al., 2008). Again, as noted, instructional leaders can affect improved student achievement by focusing on professional development that aims to improve teacher skills.

Gaziel (2007) stressed the importance of principal leadership, but he observed an ambiguity in some of the research regarding specific leadership behaviors involved in impacting student success. He noted that the work of Leithwood and Montgomery (1982) and Hallinger and Heck (1996) supported a view that the principal is an instructional leader who affects learning in the school and, therefore, impacts student achievement. However, Gaziel (2007) also referenced differing research by Ribbins and Burridge (1994), wherein they emphasized a difference between the two concepts of administration and instruction, maintaining that the principal could be a good leader without being the one who plans and guides instructional change. Still, Hallinger and Heck (1996) disputed the assumption put forth by Ribbins and Burridge, asserting that the two concepts of administration and instruction are undividable; one needs the other, and they maintained that a principal cannot be a good administrator without knowing and influencing instructional improvements.

Such an ambiguity in the role of principals as leaders prompted Gaziel (2007) to examine the issue further to determine if there was a difference between managing a school and leading instructional change. He conducted a study in Israel's secondary schools and identified specific, principal behaviors related to student academic success. From the study, Gaziel (2007) found only one principal behavior shown to have a significant effect on student

success: outlining and communicating the aspirations of the school to staff. The teachers believed that creating a vision, communicating that vision, and keeping the school on course with regard to the vision was most important for student success. The incongruous findings of Gaziel's study when compared to other, similar studies suggests that further investigation into the relationship between principals' practices and students' academic success is still an area where much research can be conducted.

One thing is clear about a principal's role in instructional leadership: principals are obligated to create schools where teacher training and professional development is a fundamental, characteristic responsibility that is encouraged or even enforced, and principals are uniquely positioned to ensure that apt training and professional development occurs. In schools where the professional culture is strong, there is an equally effective instructional leader who insists that teacher learning is a regular, ongoing feature. Participation is ensured by the school leader and through the socially constructed web of cultural and mutual obligations among colleagues who believe in what they are doing (Sykes, 1999).

It should be noted that professional development for principals is just as important as for teachers. Some school principals may not know what teachers need in the way of training and, additionally, the principal may not even understand what constitutes "good" professional development. Still, it is one of the school leader's primary responsibilities to find out what he/she should be doing in the way of planning and guiding the training of teachers through research, study, and attendance at many professional development sessions. Principals must know instruction if they are to guide, monitor, and train teachers about

instruction, so effective principals will be familiar with "learning and pedagogy, curriculum development, supervision and evaluation of teachers" (Darling-Hammond, 2010, p. 137).

Principal leadership behaviors around curricular instruction have been found to be important to student achievement. Teachers' perceptions of principal leadership behaviors have also been expressed as important to student achievement. It is the responsibility of the principal to keep the staff focused on pedagogical activities, support the teachers, and use all available resources for professional development in order to pave the way for high student achievement. School leaders must work to create organizational cultures in which everyone feels good about needing to learn, while at the same time protecting teachers from unnecessary or unproductive involvement, unreasonable expectations, and burnout (Guskey, 1995).

Teacher Discontent with Professional Development

Discontent with professional development seems to be a common element in most schools. Generally, many staff members operate under the assumption that professional development is largely ineffective in improving teachers' instructional practices and organizational capacity. Sykes (1999) maintained that it is "probably more accurate to claim that teacher professional development's impact is unknown rather than inadequate or meager, but few teachers or administrators express much confidence in it" (p. 159). Typically, teachers will acknowledge that, at least a time or two in one of their training sessions, there has been "some powerful, consequential learning experiences" (Sykes, 1999, p. 159), though

many admit that only a few of these isolated learning opportunities stand out from a mass of what they view as superficial and forgettable learning activities (Sykes, 1999).

Hawley and Valli (1999) submitted that conventional approaches to professional development were shallow and fragmented. Teachers do not think highly of professional development for many reasons. According to Fullan (1991), "nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when teachers returned to their classrooms" (p. 315). Fullan (1991) identified teacher frustrations when he described "the norm" for professional development, saying that many experts "exposed" teachers to new ideas or "trained" them in new practices. The questions begging to be answered, then, are: what did the teachers really learn that they could use to improve student learning, what made them actually want to go back and make changes in their classrooms, and could there be something more than just the training itself that encouraged teachers to question and change their teaching practices? Sparks (1994) posited that the success of professional development training was "typically judged by a 'happiness quotient' that measured participants' satisfaction with the experience" (p. 27). Teacher attitudes about professional development often depended on things other than the actual content delivered at the workshops.

Principal and Teacher Leadership and its Impact on Professional Development

Strong principal and teacher leadership is essential in changing the attitudes and swinging the pendulum toward success for students in a school. Behaviors and actions that positively influence the instructional learning of the staff are important and crucial. Emphasis

for principals has shifted from simply managing the school, as today's school leaders must focus on learning for students as well as staff, improving practices in teaching, and raising student achievement in ways that positively influence teachers to reflect upon and change their teaching techniques.

For years, researchers have investigated factors that influence student achievement. Many of these studies have found various, significant factors improving student achievement, such as socioeconomic status, school leadership, curriculum, and effective teaching. However, according to a 1998 Harris Poll, 90% of Americans believe that the most important factor in improving student achievement is having a well-qualified teacher in every classroom (Sparks, 2000a). Regarding the teacher's effectiveness inside the classroom, Andrews, Berube, and Basom (1991) inferred that a teacher's perception of the instructional leader was the single greatest predictor of student achievement. Principals and their instructional leadership can influence teachers to make changes that can then influence the learning of students.

A principal has a direct influence on school effectiveness through his or her actions that shape the school's learning environment. According to Grobe and Bishop's (2001) findings, certain attributes are fundamental to promoting student achievement (as cited in Williams, 2006). Teachers identify essential attributes that affect their classroom teaching as morale, the principal as an instructional leader, and student behavior. Glassman (1994) found that professional treatment by the principal toward teachers, including trust and confidence in their work, providing a comfortable and caring environment, professional and personal respect towards them, delegation of decision making, and other attributes such as

instructional understanding and leadership, helped create a strong sense of culture and well-being among the staff and positively contributed to student academic achievement.

Becoming a better teacher is not solely the responsibility of the principal, however. Teachers share in the instructional leadership responsibilities and, along with the principal, should be accountable for the outcomes. When it comes to building a plan of professional development, teachers want to and should be heavily involved in the instructional decision making and debate conversations within a school, and rightly so. Teachers have great impact on student learning and experiences, and so it is important that they believe in the chosen professional development plan in order to effectively execute it in the classroom. Hawley and Rosenholtz (1984) remarked on the impact of teachers:

> In virtually every instance in which researchers have examined the factors that account for student performance, teachers prove to have a greater impact than program… There is an enormous amount of evidence that teachers have a significant impact on efforts to change schools and on the nature of the students' experience, whatever the formal policies and curricula of a school or classroom might be. (p. 3, 7)

Teachers' impact does, however, vary from school to school, and it is worth asking whether it has something to do with how the teachers view or perceive the principal's leadership around professional development – that is, do they actually "buy into" the professional development plan and take action to implement the plan into their classrooms? Arguably, there must be compelling reasons for a teacher to make significant changes in their pedagogy year after year, and belief in the work and quality of their principal's instructional leadership is one such reason.

Principals have to work hard to foster and encourage belief from the teachers in what they are doing, and one way to do so is to seek teacher advice. However, teacher input is not sought often enough by principals when planning and implementing instructional changes within schools, though, in fact, teachers can be better instructional leaders when their assistance is sought. Exceptionally good teachers, who are often leaders among their peers, have a broad range of skills, abilities, and experiences. Even more, these "teacher leaders" have an enthusiasm for learning, engage in an impressive array of academic pursuits, and have many accomplishments related to teaching and learning. For example, such teachers have been involved with curriculum development or have held positions that enabled them to teach new curriculum to others. Teacher leaders also often hold many academic degrees and have attended a broad spectrum of courses, conferences, and workshops. They are knowledgeable about the school, the change process, and how to work with their peers. Moreover, teacher leaders have experience with administrative and organizational skills, and they know something about working within the complex culture of a school. They are informed on community concerns as well as the concerns of their school, and are generally risk-takers who are willing to promote new ideas that might seem difficult or threatening to their fellow colleagues. Teacher leaders also have valuable interpersonal skills, knowing how to be strong yet caring and compassionate, which can help promote a collegial learning environment in a school. Thus, improving professional development using teacher leaders is an important tool to consider. With characteristics that legitimize their positions in schools amidst often hostile and resistant faculty members, teacher leaders can promote and build support for professional development while fostering positive attitudes in the rest of the

faculty. Finally, it has been noted that teachers develop a sense of ownership when their expertise is sought and used in creating professional development plans (Lieberman, Saxl, & Miles, 2000), which can only work to strengthen their engagement and acceptance of changes.

On the other hand, professional development that does not involve the teachers in the identification of what they need to learn and, when possible, in the development of the learning opportunities and the processes to be used, leads to significant decreases in teachers' engagement, motivation, and commitment to learning (Hawley & Valli, 1999). When teachers are denied the opportunity to have input about their training, they "are likely to become cynical and detached from school improvement efforts and to reject what they experience as imposition" (Hawley & Valli, 1999, p. 139), which is often the case in many schools and the reason why teachers do not strongly support the training they are offered or receive.

Principals must learn to support teachers and foster joint collaboration when it comes to creating and executing a plan of professional development that will work. Notably, though, collaboration is not necessarily a natural part of the daily work in schools. Instead, as Lieberman et al. (2000) noted, "It must be taught, learned, nurtured, and supported until it replaces working privately" (p. 356). Teacher leaders are often the ones that have to deal with negative consequences and working environments when making curricular changes. As such, they need to know that their principal will support their leadership if they disagree with and confront colleagues based on their broader view of the school and its professional development plan. Having the support of the principal strengthens teachers' belief in the

professional development process and the principal's ability to lead curricular changes within schools.

Principal support has a major impact on teachers' motivation and ownership of decisions. School leaders must work with teachers and provide teachers the opportunities to work with each other. According to Blase and Blase (2000), there exists many formal and informal opportunities for principals to provide systems, structures, and expectations for teacher collaboration that can yield positive results. With regard to results, working with other teachers on instructional practices influences teachers to think about their pedagogy in relation to each other, and can positively influence them to use techniques and practices shared by their colleagues. When a culture of collegial collaboration around professional development initiatives is built and supported in the school, teachers have said that are more willing to ask for help, more open to admitting difficulties, and more inclined to "come out of their world" in order to see what others are doing (Blase & Blase, 2000).

For instructional change to occur and for teachers to feel confident in their leader, a clear sense of institutional mission around the quality of instruction has to be present. Moreover, teachers look for a principal that has:

> high expectations for all students and staff; a well-developed team spirit on the part of everyone working in the school; a safe and orderly atmosphere congenial to learning; and adroit leadership of the instructional process, ordinarily by a principal who views his or her role as that of an educational executive rather than a building manager. (Finn, 1991, p. 49)

Not many research studies have examined directly teachers' perceptions of principals' everyday instructional leadership characteristics with regard to improving teaching and learning through professional development, nor have many researchers observed the impacts of such characteristics on teachers. Blase and Blase (2000) completed such a study at the University of Georgia in Athens; their qualitative study involved over 800 American teachers that responded to an open-ended questionnaire by identifying and describing characteristics of principals that enhanced their classroom instruction and the impacts those principals' characteristics had on them. Although the study described traits of principals that influenced their classroom instruction, from a teacher's perspective the study did not go far enough, failing to correlate teachers' responses with a study to identify if actual changes in classroom teaching behaviors really occurred when teachers had the optimal principal and professional development. The data from Blase and Blase (2000) did, however, reveal "two themes of effective instructional leadership from teachers' perspectives: talking with teachers to promote reflection and promoting professional growth" (p. 130). Blase and Blase (2000) found that teachers want principals who encourage robust and deep reflection and provide and support excellent professional development.

The findings from the Blase and Blase study with regard to teacher perspectives on promoting reflection and promoting professional growth align very closely with Sykes' (1999) framework for effective professional development. Sykes (1999) found that schools must include attention to curricular and instructional innovations with regard to staff training. Similarly, research by Blase and Blase (2000) found that the principal must emphasize the study of teaching and learning, encourage and support redesigns of programs, apply the

principles of adult learning, and use action research. Sykes (1999) clearly aligns, agreeing that the principal must embed professional development within the content of students' curricula and use the teacher (adult) learning connection to select and design professional development.

Researchers have agreed that essential elements of professional development, such as teacher involvement in the planning stages and supporting and promoting reflection among teachers, are important ideas from teachers' perspectives (Blase & Blase, 2000; Gimbel, Lopes, & Greer, 2011; Showers, 1990; Sykes, 1999). Gimbel et al. (2011) indicated that principals should involve the teachers in shared decision making and the planning of professional development; allow for teacher collaboration; and provide quality, constructive feedback. Showers' (1990) findings indicated that professional development training "restructured the workplace, organized teachers into collegial study groups, [and] provided regular training on alternative teaching strategies" (p. 37). Blase and Blase (2000) noted that teachers wanted choices with professional development topics and believed the training they received should focus on improving instruction. Sykes' (1999) model supports all of these researchers' contentions.

Literature clearly points to the importance that teachers place on school leadership, expecting instructional leaders to understand, provide, and support professional development for them. Furthermore, teachers' feelings of empowerment and efficacy are enhanced when they have opportunities to see new strategies modeled, practice them, engage in peer coaching, acclimate students to new ways of learning, and use new teaching and learning strategies regularly and appropriately (Joyce & Showers, 1995). The next section of the

literature review will focus on why the need for professional development is so critical to teachers.

The Need for Professional Development

Teachers in America must improve their teaching practices in order to meet the demands of educating a 21st century population lacking in achievement. In 2011, the high school graduation rate in the United States was about 72% (Koebler, 2011). Furthermore, as Wagner (2008) noted:

> Only about a third of U.S. high school students graduate from high school ready for college today, and the rates are much lower for poor and minority students. Forty percent of all students who enter college must take remedial courses. And while no hard data are readily available, it is estimated that one out of every two students who start college never complete any kind of postsecondary degree. (p. 19)

Alarmingly, recent findings show that U.S. student achievement has continued to lack, as evidenced by the latest global rankings published by The Program for International Student Assessment (PISA), an organization that collects testing results from 65 countries triennially. According to PISA, in 2012 the U.S. global ranking was below 20th place in math, reading, and science, falling significantly in all three areas since 2009 (Chappell, 2013). Clearly, then, student achievement is lagging in many of our public schools.

According to research findings, no single factor has greater impact on student achievement than the quality of the teacher in the classroom (Haycock, 1998). Likewise, Hawley and Valli (1999) maintained that improvement of schools requires the improvement

of teaching. Saphier, Haley-Speca, and Gower (2008) similarly found "there are many important factors to having good schools, but nothing is as important as the teacher and what the teacher knows, believes, and can do" (Saphier et al, 2008, p. 5). As such, there seems to be wide agreement that teachers are of the utmost importance when it comes to making instructional changes in the classroom. However, not all teachers are adequately prepared to meet the many and varied needs of the large numbers of students in their classrooms. Thus, if we hope to reverse the lagging performance and graduation rates of U.S. students, and since the solution certainly cannot be to replace every low-performing teacher with one that is better prepared, attention must be given in our schools to finding strategies that assist and help less successful teachers improve.

There is a clear link between excellent professional development and school improvement efforts. School improvement cannot occur without high-quality, sustained, ongoing, content-focused, and job-embedded professional development. Hirsh (2005) maintained that quality professional development employs the strategies needed to ultimately improve teaching. Moreover, teachers, and better teaching practices, certainly affect schools and students' performance, as Hawley and Valli (1999) suggested in noting the "enormous amount of evidence that teachers have a significant impact on efforts to change schools and on the nature of the students' experience" (p. 128). Thus, it follows that through the betterment of professional development, student achievement and student experiences can also be improved. Smylie (1995) also emphasized the need for staff development and its connection to overall student achievement, noting, "We will fail…to improve schooling for children until we acknowledge the importance of schools not only as places for teachers to

work but also as places for teachers to learn" (p. 92). Fullan (1991) agreed, stating that "staff development cannot be separated from school development and school improvement" (p. 331). Yet, often providing teachers with the "right" kind of training is a "hit or miss" endeavor, as Hirsh (2005) observed:

> Policymakers and educators strive to find the "right" professional development approach to ensuring that all teachers have the knowledge and skills essential to produce high levels of learning and performance for students. Countless professional development providers claim to have the answer to their dilemmas. And while their solutions may have helped in certain situations, there is never any guarantee that others will experience similar success. (p. 39)

Indeed, in many schools, even those with an abundance of professional development, there are few positive results seen for all the efforts with respect to the teaching and learning that take place inside the school. If schools are to improve, that must change. Furthermore, today's teachers cannot continue to tolerate large numbers of high school dropouts or graduates with minimal skills; the cost of such poor achievement to our students, and our nation, is too high. It is therefore imperative that we improve the skills of America's teachers, and so the call to improve teaching and learning through professional development has never been louder.

Still, not all principals and teachers concur as to what constitutes good instructional training. Principals and teachers are committed to making their practices better but do not always agree on what training should be offered or how it should be conducted and delivered. Overall, they are not in complete accord as to what educational practices are best, thus

demonstrating a need for clarity on how good professional development looks and feels. Such clarity is especially important for principals, since they are the primary planners and providers of teacher training in schools. Nonetheless, the lack of concurrence between teachers and principals is a critical factor, as it is difficult to provide adequate, successful training when the parties involved do not agree on what constitutes "best practices." The discrepancy between teachers' and principals' views can also lead to ineffective improvement strategies and negative attitudes that do not support the advancement of school training or student success, making it a vital element to consider when planning for professional development.

Most schools and school systems offer a substantial amount of professional development, but it may be of low quality and fail to employ the best models for teaching and delivery of new information. For instance, in order to make improved curricular changes within a school, professional development must be offered to all staff, and teachers must be required to work and collaborate with each other. Often, however, when the needed structures of support are not in place, professional development training is delivered via a "large group" method, and participants are then expected to go back into their classrooms and work alone. Having teachers work in isolation from their peers discourages collaboration and shared expertise (Darling-Hammond, 2010), thereby impeding the improvement process.

Besides large-group professional development training, another model often found in schools is what Guskey (2000) described as the "individually guided" approach, in which teachers choose their own professional development goals and needs. He wrote:

> Educators determine their own individual professional development goals and then select the activities that they believe will result in the achievement of those goals. The model is based on the assumption that individuals can best judge their own learning needs and are capable of self-direction and self-initiated learning. (Guskey, 2000, p. 27)

While there is flexibility and opportunities for choice with Guskey's model, nevertheless, in most schools it does not work because there is little formal structure and follow-up from school leaders to ensure teachers are working as needed. For example, teachers may take courses or workshops for things that are already in place in the school or that could be taught by a "resident expert," i.e., a teacher also working within the school who is experienced in the subject. Likewise, when teachers are taking workshops that are wildly varied in topics, it is quite difficult to create and maintain a shared mission or united purpose about the kinds of teaching that should be occurring in classrooms. Hence, there must be some oversight to ensure the goals and trainings that teachers individually select are in fact "sufficiently challenging, worthwhile, and related to specific improvement in professional practice and enhanced student learning" (Guskey, 2000, p. 28).

A third popular model for professional development is the "book study" or "study groups" model, which usually involves the entire staff of a school reading and discussing the same book and finding solutions to common problems; for discussion, staff members may even divide into groups by subject, grade, or expertise and work together for a set length of time. Some schools employ a variation on such a model, wherein all the groups focus on the same broad issue or problem, but each individual group selects a different, specific aspect of

the situation on which to concentrate (Guskey, 2000). Later, opportunities are provided for the groups to come together throughout the year and share their respective findings. However, distinct support structures must be in place to support this kind of professional development and, if not implemented properly and carefully monitored, some groups or group members can dominate and cause apathy or less participation in other groups. Also, training of this kind is very time-consuming because of the large amount of reading and research that must be completed in order to do it well. Another issue with such training is that group discussions and work may become opinion-based instead of research-based; moreover, leadership with such book or group study initiatives is generally poor (Guskey, 2000).

The "train the trainer model" is an alternate form of training used in schools, a practice which entails sending an individual or group of individuals to specific workshops, educational conventions, or school site visits to learn new information. The individuals or group then return to their base schools to teach fellow faculty members what they have learned or train them in observed practices. Notably, though, such an approach can be problematic for many reasons. First, the staff members who received the training cannot hope to pick up the whole essence of the training based on a few hours or few days of attendance. Real learning happens over time; one must first be exposed to new information, wrestle with it, let it sink in, and then begin to work with it, thereby creating new sets of questions and understandings about theory and practices to be addressed. Persons trained with such a model may therefore lack a broader understanding about the concepts learned, instead knowing only what they learned when they were first exposed to the new ideas. Also, as time passes, the trainer may need to allow additional time for more deeply exploring new concepts, because

the teachers' understandings or perspectives have changed since trying to implement some of the new ideas into their classrooms. Most "train the trainer" models do not work because the teachers who attend professional development sessions outside the school are not yet experienced enough themselves in the initiative to properly introduce, explore, model, and challenge the faculty to make relevant changes. Simply put, the trainers themselves often do not completely understand the content they are trying to teach.

One reoccurring problem when introducing new ideas and pedagogies in professional development efforts is the failure to provide adequate support structures for teachers, such as mentors and coaches, collaborative planning time, quality training, and other required resources (Darling-Hammond, 2010; Guskey, 2000). The work of training teachers to become improved practitioners must focus on the "concrete tasks of teaching, assessment, observation, and reflection" (Darling-Hammond, 2010, p. 226). Too often, the training is spotty and at odds with other expectations within the school, ultimately leading to little change and resulting in the continuation of teaching and learning as usual, without modification, in classrooms.

When working to improve student performance and teacher learning, one must also look for ways to train teachers to instruct kids in such a way as to engage them and make them excited about learning. K-12 schools today have too narrow a focus on memorization and content. Too often, what happens in classrooms is not much different from the one-room schoolhouse of the 1800s, just as ineffective as the assembly-line approach to teaching and learning of the 1900s. Instead, teachers must realize that they are teaching 21st century students. Being an independent, lifelong learner and knowing how to access and analyze

information, which is growing exponentially and is constantly changing in today's digital age, is far more important for modern-day students than rote learning of specific academic content. Students today must be prepared to apply what they learn to new situations and challenges, rather than merely recite what they have memorized (Wagner, 2008). As Wagner (2008) predicted, "Increasingly, the only decent jobs that remain in this country will go to those who know how to continuously improve products or services to create entirely new ones— knowledge workers of the twenty-first century" (p. 256). Thus, it is critically important that professional development for teachers evolves and improves as society, technology, and students themselves change.

In particular, professional development for teachers must reflect the change in today's students, as modern youth are differently motivated when compared to previous generations. As previously discussed, Wagner (2008) addressed the distinction in today's students, pointing to the fact that today's youth, being natives to the busy digital age of the internet, are "multitaskers who hunger for immediate gratification" (p. 257). At the same, time, though, he recognized in them a unique curiosity and "connectedness" (Wagner, 2008, p. 257), as well as a desire for guidance from sincere, authentic adults, such as teachers, who can relate to them in ways other than from a place of authority. It seems, then, that today's teachers must be aptly prepared and trained to successfully engage with contemporary students, and more effective professional development offers a means to do so.

With such a unique modern student population, and in the face of a new era with more ambitious learning goals, diverse and demanding student bodies, and a nationwide commitment to educate all children to high levels of accomplishment, the need for more

knowledgeable, skilled teachers has increased dramatically. As we prepare for the future of education and consider what schools need with regard to professional development, there is a clear need to press beyond the basics to more demanding forms of academic learning for both students and staffs. Teachers of the future must be capable of far more sophisticated forms of practice than in any prior time (Sykes, 1999).

Long-range professional development planning focused on improving the skills of the classroom teacher is an important task of instructional leadership and is a key element to answering the call of changing our nation's schools. There must be a guiding compass that focuses all other decisions in the same direction with regard to instructional practices: the instructional vision within a school. To accomplish the difficult task of improvement, principals and teachers need time simply conversing, collaborating, and even at times debating, in order to develop a working instructional vision that ensures success in the long term. Teachers must spend many hours deliberating about the meaning of their work. In addition, teachers should put into writing a purposeful plan of action that is actionable and used daily, a plan that is more substantive than ideological and which is devoid of trendy phrases and educational jargon. Teacher involvement with instructional planning is a deciding, key factor as to whether a teacher has positive perceptions about the plan and is willing to implement changes in their classroom. Likewise, before teachers can make valuable changes to their pedagogy, they must be involved with the construction of the professional development plan. Hence, the principal plays a central role in involving teachers and helping them feel ownership of and support for any professional development plan.

Wagner and Kegan (2006) suggested that a clear purpose and focused efforts on instruction are indispensable to making successful changes in schools. In order to improve instruction, there must be a clear purpose or mission, allocation of resources, and alignment between the professed focus and how time and money are actually spent. Well-defined strategies for improving teaching and learning must be created by the school leader and teacher, with a distinct purpose and use of resources that matches the needs of today's students.

Research has proven over and over that, absent high-quality professional development in schools, reform is just, simply, not likely to happen. Schools and school systems adopt new curriculums, set rigorous standards, create academic visions, compile the best research, order new textbooks, order innovative technology, and promote other teaching strategies that have proven successful, yet still forget one of the most basic resources needed to accompany all the rest of the improvements— quality professional development.

Methods and practices discussed earlier, as well as a multitude of other kinds of activities in schools, serve as professional development training in a misguided attempt to be too many things for too many educators. Ineffective professional development training and practices impede learning both for teachers and students. When educators are not provided high-quality learning opportunities, change in teaching practice does not occur. Instead, professional development must be something meaningful that models the best methods and practices of effective teaching. Unsuccessful professional development practices need to be removed from public schools and replaced with useful and valuable elements as identified in research, in order to enable educators to grow, develop, and improve their pedagogy, in effect

raising the learning levels of their students. The next section of the literature review presents and describes the elements of effective professional development that, according to research, most often occur in schools that have experienced significant and sustained improvement results.

Effective Elements of Professional Development

There have been numerous studies, articles, and books written that discuss effective elements of professional development. Of these, there are several important findings that rise to significance in the majority of the empirical works. Teacher professional development must be: continuous and ongoing, site-specific, connected to the student curriculum, providing sustained examination of student learning, and integrated with a comprehensive change process to improve student learning. Additionally, professional development training should involve teachers in planning, offer them time to collaborate with peers, use multiple data sources to evaluate effectiveness, and provide opportunities for teachers to engage in developing a theoretical understanding of concepts (Darling-Hammond, 2010; Elmore, 1992; Elmore & Burney, 1999; Fullan, 1991; Guskey, 1995; Guskey 2000; Hawley & Valli, 1999; Joyce & Showers, 2002; Militello, Rallis, & Goldring, 2009; Sykes, 1999; Thompson & Zeuli, 1999). Schools wanting to provide adequate training to teachers must frame it in the context of something akin to going back to college and earning another degree, rather than something that can be achieved overnight. Enacting any substantive change in teachers' pedagogical practices and overall student academic learning will require substantial learning by the teacher over an extended period of time. It is also important to realize that teachers

today are overworked with large class loads and are barraged with countless mandates, making many feel that it is nearly impossible to do it all. As a result, once teachers get back to the safety of their classroom, they tend to go back to, and keep doing, the same things they have always done.

Hawley and Valli (1999) describe the change needed in teacher training as a new paradigm in professional development:

> It must be a shared, public process that involves teachers and students; promotes sustained interaction between colleagues; focuses on substantive school-related issues like teaching and learning; relies on internal expertise; expects teachers to be active participants; emphasizes the why as well as the how of teaching; articulates a theoretical research base; and anticipates that lasting change will be a slow process. (p. 134).

Furthermore, it is important to recognize that quality staff development depends heavily on the credentials of the instructor. Hirsh (2005) noted that "the process of improvement is too slow unless you also introduce experience from the outside" (p. 39). As such, schools must draw on the vast expertise of the best teachers within a school and also use the best presenters from outside the school.

Sykes (1999) proposed a model for professional growth that is supported by much scholarly research and writing. He suggested that professional development was once "initially regarded as one among a number of coequal policy instruments for promoting change, it now is reckoned as the centerpiece" (Sykes, 1999, p. 152). Sykes (1999) went on to explain that school leaders are realizing the substantial amount of learning required on the

part of teachers if schools are to improve, writing, "Curricular changes, like all other important changes in education, ultimately relies on teacher understanding, skill, and will" (p. 157). The current study sought to explain what kind of training and support teachers require to make improvements to their pedagogy, but also to further address the question of "will" in identifying what makes teachers want to change their practices.

Teachers should not be considered simply as employees in the field of education, wherein professional development initiatives are done *to* teachers rather than *with* them. Sykes (1999) proposed that researchers, as part of their work, should use teachers to "engage in processes of knowledge production, testing, dissemination, and use" (p. 152). That is, teachers must be working practitioners that contribute to the body of knowledge that will be used to improve their skill sets. Hawley and Valli (1999) agreed, noting that teachers should be provided with "opportunities to engage in developing a theoretical understanding of the knowledge and skills to be learned" (p. 142). Researchers have agreed that today's successful teacher training in schools requires teachers and their expertise to be included in the planning, learning, implementation, and evaluation of any new initiative.

For guidance, Sykes (1999) listed the elements of an effective teacher professional development framework for schools to use when planning for teacher improvement. While the five components that Sykes (1999) named are not meant as a definitive set of guidelines, they provide an overall direction for schools to consider as they are moving toward a solution that will work to strengthen the teachers' skill sets and thereby improve student learning:

1. Use the teacher-student learning connection as a criterion for the selection and design of teacher professional development.

2. Embed teacher professional development in the specific content of the student curriculum.
3. Integrate examination of student learning, using multiple sources of evidence into teacher professional development.
4. Include attention to student learning in teacher professional development associated with the implementation of curricular and instructional innovations.
5. Reference formative and summative evaluations of teacher professional development to student learning.

In addition, good professional development should be designed more "explicitly with student and teacher learning in mind as proximate or ultimate outcomes" (Sykes, 1999, p. 162). For the current study, the above framework established by Sykes (1999) was used as a model for planning and providing effective training for teachers in schools.

Teacher-Student Learning Connection

The teacher-student learning connection should serve as a "criterion for selection of professional and school development activity" (Sykes, 1999, p. 161). Many educators believe, and Sykes (1999) agreed, that most professional development offered in schools "appears weakly coupled to effects on students" (p. 161). Schools are asked to provide a myriad of training on everything from testing procedures to first aid. The offerings may be provided by university professors, private consultants, in-services planned by the district and driven by school improvement planning requirements, district initiatives, or teachers' professional development plans. There are many reasons why teachers and administrators might pursue professional development that extends well beyond the direct impact on student

learning. Nevertheless, however, staff development should most often be designed with student learning as the prime beneficiary, with a clear and direct link "between the learning opportunities provided to teachers and the eventual learning of students" (Sykes, 1999, p. 162). Hawley and Valli (1999) similarly suggested that professional development should be driven by "analyses of the differences between goals and standards for student learning and student performance" (p. 139), highlighting the importance of comparing student achievement to the desired or expected curriculum goals. When achievement is not meeting the established expectations in a particular area, that area is the topic one should consider offering in professional development.

Teacher involvement in and learning from professional development is equally important. Sykes (1999) wrote, "Professional development should involve the stakeholders in the identification of what they need to learn and, when possible, in the development of the learning opportunity and process to be used" (p. 139). School staff must seek out and identify problems and then plan and create responsive programs. Even more, if we are going to ask teachers to reconsider their fundamental beliefs, especially the belief that "they are the source of knowledge and that they have a responsibility to cover a specified amount of content" (Borko & Putnam, 1995, p. 55), we must provide them with learning opportunities connected with their curriculum and the students they teach. Teachers' existing beliefs and skills must be challenged in order to improve their experience and understanding with subject matter, students' learning, and teaching practices (Thompson & Zeuli, 1999). Thus, teachers need to experience the learning like their students and spend time adapting to what and how they are

teaching, in order to see positive results in their classrooms with their students (Hawley & Valli, 1999).

Darling-Hammond (2010) wrote that "effective professional development is sustained, ongoing, content-focused, and embedded in professional learning communities where teachers work over time on problems of practice with other teachers in their subject area" (p. 226). Furthermore, professional development that supports the work of teachers focuses on the "concrete tasks of teaching, assessment, observation, and reflection, looking at how students learn specific content in particular contexts, rather than emphasizing abstract discussions of teaching" (Darling-Hammond, 2010, p. 226). Quality teacher training offers a real and genuine focus on student learning, helping teachers to analyze and understand the skills students are expected to know and perform well (Darling-Hammond, 2010). Darling-Hammond (2010) also supports the idea that professional development programs and initiatives must be student-centered and focused on what teachers need rather than what they necessarily want. Teachers must understand how to evaluate the effectiveness of professional development initiatives and the effectiveness of their own teaching, in order to correctly identify the next steps in planning for their continued growth.

Embed Professional Development in the Specific Content of the Student Curriculum

According to Sykes (1999), the idea for effective professional development is a simple one: embed teacher training within the specific content of student curriculum. Most teachers need multiple opportunities to work directly with the student curriculum they are expected to teach, because the curriculum is often dense and teachers may not be entirely familiar with the content. Sykes (1999) identifies three closely related ways for teachers to

work with the curriculum: (1) Teachers need to deepen their own understanding of the subject matter and skills-related content; (2) teachers need to deepen the various ways of representing and conveying that content instruction (frequently referred to as pedagogical knowledge or understanding of content); and (3) teachers need to deepen their understanding of how students learn the content (p. 163). Sykes' trilogy reflects the heart of professional development: the subject matter, the teaching, and the learning. That is, using the material within a subject as the basis for professional development aimed at improving the teaching and learning of that subject matter is the most critical area to consider when planning professional development activities. Arguably, the more a teacher understands a subject, the better they will teach it, and the higher their students' performance will, in turn, be.

In order to be most effective, teachers should continually learn about and improve their own knowledge of the instructional subject matter. Professional credibility depends on teachers knowing the material they teach students, and what they teach is constantly changing. For example, as Hawley and Valli (1999) noted, "current understandings of mathematics, science, history, and the arts – and how to teach those subjects – have changed radically" (p. 140), but neither the training of teachers nor the instruction on those subjects has really changed or been modified within public schools. Obviously, training for teachers has to model the most current information and best practices available in each specific field of study.

There are important areas of teacher training to consider that may not be subject-specific. For instance, reading and writing are areas of learning that should be taught but are not necessarily part of a science curriculum. Therefore, it is up to the principal and teachers

to search out and provide meaningful training in the areas of reading and writing. Teachers are particularly satisfied when they are provided training on how to improve their teaching of reading and writing using their specific grade-level or subject-specific material.

Integrate the Examination of Student Learning using Multiple Sources of Evidence

There is often very thin feedback provided to teachers about student learning, and the feedback they receive most often comes through traditional, summative, multiple-choice assessments. According to Sykes (1999), teachers have to be engaged in "designing authentic assessment tasks that purport to measure ambitious learning outcomes, creating scoring rubrics, evaluating student work samples contained in portfolios, and implementing assessment practices that feature public demonstrations and collectively developed standards for evaluation" (p. 166). In other words, if teachers are trained and engaged in all aspects of student assessment, including design, administration, and scoring, it may promote professional learning on the part of the teacher related to student learning. Teachers must know their content, understand how to teach it, and quantify how students learn and demonstrate their knowledge by creating assessments that measure the outcome of student learning.

Teachers should not have to rely on outside measures alone to define student achievement, and they can, and should, be responsible for developing methods and measures of student learning as part of their everyday work. Teachers are more thoughtful about what they teach and how they teach when they themselves have constructed and are responsible for the measurement tool, so professional development that instructs teachers on how to develop appropriate testing instruments is something all schools should provide.

Attend to Student Learning Associated with the Implementation of New Innovations

Too often, the training teachers receive with regard to new initiatives and innovations makes little or no reference to what students learn. Relatively few school-wide innovations have been validated on the basis of their impact on student learning (Fashola & Slavin, 1998). Sykes (1999) suggested that teacher training with new initiatives must "build more attention to the effects on student learning as a means both to improve the process and test the program or innovation itself" (p. 168). Such a monitoring of the effects on learning could include small scale experiments or action research in which teachers "formally test samples of students using curriculum-specific assessments, design and administer new assessments based on the new program's learning objectives, [and] conduct clinical interviews with selected students to explore qualitative dimensions of their learning" (Sykes, 1999, p. 168). Training teachers to implement these practices requires the expected learning or student outcome to be clearly identified, and would also restrict schools to engaging in fewer innovations or new practices over longer periods of time.

Militello et al. (2009) promoted the idea of building teachers' capacity to diagnose student learning needs with regard to instruction, so that teachers can-and-do modify instruction and implement appropriate strategies to meet student needs. The process begins with intensive and effective professional development, in using both diagnostic tools and specific best practices in student instruction. It is important for the principal to note that the mere availability of training does not guarantee improved instruction, and the principal must be "keenly aware that much of what is sold as professional development is ineffective – a lot

of one-shot in-service sessions only tangentially relate to core academics" (Militello et al., 2009, p. 94).

A viable staff development program facilitates mini-inquiry-action cycles among grade-level groups to specify and identify the best way to meet teachers' needs. Through these mini-cycles, the teachers will recognize their need to refine classroom skills so as to better detect learning problems and can make immediate adjustments to their instruction. To be effective, the staff development must be accompanied by discovery or "reflection-in action" (Militello et al., 2009, p. 95). Not only must teachers be involved in professional development planning, implementation, and assessment, but they should also have to have time to reflect on their work.

Reference Formative and Summative Evaluations of Professional Development to Student Learning

Current professional development offerings to school faculties do not often seek evidence that the new innovation has produced any significant changes in teaching or learning from the students. Instead, most schools examine summative state or national testing data and work to make connections with the staff training that was put forth at some earlier time in the year. But, teachers want to know if what they are doing now is making a difference to them, their school, and the learning of students. Militello et al. (2009) found that connecting the outcomes of professional development to student outcomes is difficult to do, writing, "The causal chain that connects an in-service intervention to effects on teacher thinking and instructional practices, in turn yielding effects on student learning, is complex and hard to establish" (p. 169). Evaluating professional development initiatives and tracking

the impact on student learning does highlight the importance of maintaining the initiative and continuing its implementation in the school for more than a short period of time, because schools must concentrate on new initiatives long enough to anticipate an impact on student learning. Additionally, tracking the impact on student learning gives schools a general idea about the effectiveness of their professional development program. Teachers have a stake in what happens in their schools and value the evaluative process. Being part of the process that evaluates the staff development and works to create more knowledge about initiatives is important to teachers and shapes their attitudes.

Hirsh (2005) supported Sykes' idea that formative and summative evaluation of teacher professional development to student learning is an essential key to monitoring staff development. She wrote that "building the capacity of teachers to teach the standards and to assess progress accordingly is key to achieving the results desired for students" (Hirsh, 2005, p. 40). From Hirsh's point of view, failing to create and constantly review student and teacher formative and summative assessment data will ultimately result in professional development that is ineffective and doomed to fail.

Structural Changes Needed to Support Staff Development

Elmore, Peterson, and McCarthey (1996) wrote that, "many of the changes in teaching practice that reformers want to achieve would seem to imply significant structural change in schools" (p. 214). While it is true that many of the schools they studied made significant changes in organizational structure, more important to the researchers was instructional leadership that fostered "a strong set of norms for interaction among teachers

and a flexible approach to grouping students" (Elmore et al., 1996, p. 215). In other words, the school staff understood the importance of creating a culture in which teachers worked together around instructional issues while, at the same time, keeping the focus on students. The principal and teachers were both involved and recognized the need to create an instructional mission, vision statement, and a set of goals that would meet their specific teaching and learning needs. These are essential elements to solidifying how a particular school's staff will work together and perceive principal leadership, and whether they will create a long-range professional development plan that is effective and open to considering "outside-of-the-box" ideas. The instructional vision establishes what the school hopes to become, the instructional mission addresses why the school exists, and a set of goals clarify how to measure the intended outcomes (DuFour, DuFour, & Eaker, 2008). Also important in the process is the instructional guidance offered by the school principal and how others, mainly the teachers, perceive or view the principal's guidance.

Schlechty (1997) referred to such a re-culturing and significant change as a "disruptive change" because it "calls upon the system and those who work in it to do things they have never done" (p. 3). Marzano et al. (2005) called re-culturing a "second-order change" in innovation that represents a dramatic departure from the expected and familiar. Schools that truly want to advance must depart from the familiar and completely overhaul how they perceive, plan, and implement professional development. Second-order change is a break from the past status quo, is inconsistent with existing paradigms, may seem at conflict with prevailing practices and norms, and requires the acquisition of new knowledge and new skills (Marzano et al., 2005). Much of the professional development in schools today

includes familiar topics and ideas that teachers already know, with little new information to stimulate teachers' minds. On the other hand, truly meaningful professional development is the kind that sufficiently challenges the staff's ideological underpinnings and long-held beliefs, akin to returning to higher education in order to obtain another degree. The difficulty involved with such great change may explain why so many teachers and principals choose not to implement alternative pedagogical ideas and techniques within their classrooms and schools.

Pajak and Glickman (1989) studied school districts with consistent student achievement gains for four years. What they found was that high performing schools had an established structure for how to address and implement professional development. They found three major dimensions about how school improvement with regard to teacher learning that was implemented in all school districts:

1. An instructional dialogue: Teachers were engaged in a continuous cycle of discussing, planning, implementing, and reviewing curriculum and instruction.
2. An infrastructure of support: Each principal had set up an organizational structure and design where staff members were responsible for fostering dialogue about improving instruction and student learning.
3. Varied sources of instructional leadership: The primary instructional leaders varied but included central office supervisors, principals, assistant principals, department chairs, teams of teachers, and outside presenters.

It is clear that, in order for constant learning to become the culture of a school, there must be continuous and ongoing support provided by the instructional leader to teachers in the school.

Hawley and Valli (1999) supported the notion of supportive instructional leaders in finding that "professional development should be continuous and ongoing, involving follow-up and support for further learning, [and] including support from sources external to the school that can provide necessary resources and an outside perspective" (p. 141).

Undoubtedly, it will take the best of an entire range of learning practices and creative thinking with regard to structural changes in order to successfully engage and prepare our principals, teachers, and students for the future. Instructional leaders in most schools will likely need to restructure current school ideas and status quo ways of thinking about staff development planning so they can adequately meet the needs of modern-day teachers and students. As Trilling and Fadel (2009) wrote, "Learning for work and life in our times means helping as many children as possible learn to apply 21st-century skills and a solid understanding of core subjects to the challenges of our times" (p. 49). Teaching and learning is constantly changing and evolving in schools, and staff development and structural support must also change in order to attain success.

Collaboration

Bringing about a cultural shift in the school organization that focuses on improving classroom teaching is a complex and challenging task. As such, there are many structural facets required to sustain a well-developed, long-range plan of professional development to grow and support the more important philosophical changes needed to solicit school improvement. Schools committed to an "infrastructure of support" (DuFour et al., 2008, p. 149) must provide the staff with time to collaborate and learn alongside one another, one of

the essential elements of structural support. Additionally, schools must develop the parameters and processes required to ensure their shared learning is focused on areas that impact student achievement (DuFour et al., 2008).

Professional development that only provides theoretical training results in considerable knowledge for the teacher, but little skill and negligible transfer to classroom practice (Showers, 1990). Showers (1990) found that when staff development was designed to include theory along with demonstration and practice, nearly all teachers developed sufficient skills to use the new models in their classrooms. She noted that "when teachers understood the theory of a curriculum or strategy, saw multiple demonstrations of the new material or practice, and had opportunities to practice in the training setting, nearly all teachers developed sufficient skill to enable classroom practice" (Showers, 1990, p. 35). Showers (1990) also realized that teachers must first understand the nature of the innovation and its theoretical bases before the training could be useful in the classroom. More importantly, though, teachers must have time working together to practice and develop the skills required to use with the new innovation. One factor that Showers (1990) indicated as significant in promoting teachers to use new teaching strategies was providing collaborative time for teachers to work together and peer coach one another. In her studies, she indicated that "providing opportunities for substantive collegial interaction (i.e., coaching) would increase the thoughtful integration required to use new knowledge, behaviors, and materials and add them to existing repertoires" (Showers, 1990, p. 36). Amidst structural and cultural change, teachers' collaborative work together yielded companionship, comfort, and friendly support, during the period when instructional changes and innovation may feel awkward and

inefficient for some teachers. Such collaborative peer coaching proved to be one of the most essential elements needed for teachers to show improvement in the implementation of new strategies provided through professional development (Showers, 1990).

Moreover, in Showers' (1990) study, after teachers received professional development training, half the participants were randomly assigned to coaching follow-up training programs while the others served as the control group. She found that "the coached teachers exceeded their uncoached comparison group in implementation of the new strategies in the classroom by a dramatic margin" (Showers, 1990, p. 36). About 80% of the coached teachers transferred the new strategies to their active teaching repertoires, compared with only 10% of the uncoached teachers making the transfer. As a result, Showers (1990) reconstructed her ideas about what was needed for effective professional development, to include: organizing teachers into collegial study groups; providing regular training on alternative teaching strategies; and setting and striving to achieve goals for school improvement. Structural and procedural changes have to occur in schools if they expect to support effective professional development and move teachers to implement changes with their instruction inside the classrooms across the country (Showers, 1990). Little and McLaughlin (1993) supported Showers' work, writing that teachers need assistance from peer coaches and outside experts in order to support new instructional strategies and put those strategies to use in the classroom.

Further support is found in an interview with Kati Haycock, the executive editor of the Journal of Staff Development, in which she said:

> We argue that if you create strong support structures for teachers, instruction in the school will inch upward because, even in the lowest performing schools, you typically find a few teachers who are quite good. If you create a vehicle for them to help their colleagues, you will see improvement over time. (Sparks, 2000, p. 38)

Likewise, Hawley and Valli (1999) cite collaboration as one of their required components to professional development for building and maintaining an effective learning staff. Activities can include interdisciplinary teaming, collaborative action research, and curriculum development and critique. Educators working together to tackle issues of common concern facilitate the identification of both the causes and potential solutions to teaching and learning problems within a school. Thus, collaborative problem solving "breaks down teacher isolation, collectively empowers teachers, creates an environment of professional respect, and develops a shared language and understanding of good practice. Without collaborative problem solving, individual change may be possible, but school change is not" (Hawley & Valli, 1999, p. 141).

Principal and Teacher Beliefs Vary about Effective Elements of Professional Development

Gimbel et al. (2011) established that "every year, nine in ten of the nation's three million teachers participate in professional development designed to improve their content knowledge, transform their teaching, and help them respond to students' needs" (p. 20). According to their research, a contributing factor to teacher effectiveness is how the principal fosters and provides teacher professional growth (Gimbel et al., 2011). As stated earlier,

teachers have a direct impact on student achievement; the school leadership, primarily the principal, plays an important role in making sure teachers are provided with quality professional growth opportunities to help them be most effective.

A review of the literature has found that providing high-quality professional development is the most commonly used approach to increase teacher capacity and promote growth. Effective professional development is essential to the professional growth of educators, and principals often have the most direct input in determining the form and types of professional development offered to teachers. The current study seeks to discover what teachers perceive to be effective elements of professional development and what support is required from the instructional leadership at the school: What factors/characteristics about the professional development and instructional leadership influence teachers' willingness to make changes in their professional practices? Do principals provide staff development in a way that teachers perceive or consider to be effective and positive? Do principals and teachers believe effective elements of professional development are the same, or do they have different opinions and ideas?

Both principals and teachers concur that improving their pedagogical skills can only be achieved with carefully designed training, support, and assistance. However, principals and teachers sometimes disagree on which specific actions are the most important with regard to professional development and support. Evidence of this disagreement can be found in the study by Gimbel et al. (2011), in which they uncovered a striking finding in "the difference in perception of what teachers, as opposed to principals, indicated as the most important action by the principal that impact their professional growth" (p. 23). For example,

providing a mentor to support new teacher learning and growth was ranked as most important by teachers, but was ranked 11th by principals.

Collaboration, as discussed earlier, is rated among researchers as being important to improving teaching practices. In the Gimbel et al. (2011) study, teachers rated collaboration as 3rd in importance while principals ranked it as 7th. Also, along with collaboration, much importance was placed on teacher input with regard to the planning of school professional development. Principals and teachers generally think that gathering input from the faculty is a good idea; interestingly, however, 94% of principals in the Gimbel et al. (2011) study indicated they seek teacher input while planning professional development, yet only 45% of teachers believed principals actually sought their input. It seems, then, that there is consistent belief in what ought to be done but some obvious variance in the perception of whether and to what degree teacher input is, in fact, sought and used when planning training for the staff.

Research on school leadership suggests that, in schools where formal and informal conversations about curricular and instructional innovations occur, higher student achievement scores are produced. Interestingly, 95% of principals in the Gimbel et al. (2011) study ranked the time they spent speaking informally with teachers about their teaching practices as important, while just 46% of teachers indicated the practice of speaking informally about instruction as being significant. Gimbel et al. (2011) determined that "strong principal-teacher relationships through both formal and informal evaluations, coupled with ongoing positive dialogue between principals and teachers, are integral to teacher professional growth" (p. 28). Teachers want to feel as though their input is valuable in school

governance when planning and implementing teacher training in their schools, and such input can be gained from formal as well as informal conversations with instructional leaders.

Often, teachers feel overwhelmed with the multitude of initiatives occurring in schools. Too much professional development can cause teachers to view the "training of the day" as something that shall quickly pass. Sykes (1999) wrote:

> At any given time, teachers may be trying out a new district-adopted textbook, attending workshops to learn about a new state curriculum framework, studying student test results as a basis for modifying instruction, participating in a school reform network promoted by the principal that requires school restructuring of some sort, attending classes at a local university or extended institutes in the summer, and tinkering with new materials and ideas in their own classrooms. (p. 155)

It is understandable that a teacher might not want to be fully engaged or may be suspicious of the newest initiatives, and many teachers see constant training and new initiatives as a kind of burden that they must just endure to survive. Obviously, they would be more engaged and willing to work on improving teaching skills and classroom practices if principals would protect them from the barrage of training, choosing instead to focus on a few key initiatives where the staff could invest much more time and resources.

Summary

For many years, researchers have investigated factors that influence student achievement. The preceding literature review offered much background information on principal and teacher leadership actions, professional development planning, and the

importance of each factor on the learning outcomes and academic success achieved by students. Literature suggested that strong instructional leadership by the principal, using high-quality professional development, is one of the most important tools available to help teachers become more effective, refine what they have learned, and develop new skills. Studies also indicated that a teacher's perception of the instructional leader was the single greatest predictor of student achievement.

To support the curricular training, structural changes within the school must occur. Conventional approaches to professional development are often shallow and fragmented, and many teachers do not think highly of professional development for a number of reasons. The success of professional development trainings is typically judged by measuring participants' satisfaction with the experience. However, researchers found that teachers' attitudes about staff development often depended on things other than the actual content delivered at individual workshops, such as school leadership and their own participation in the planning and implementation of the professional development plan. Specifically, teacher involvement with professional development planning is an important key factor in defining whether the teacher's perceptions about the professional development will be positive and to what extent he/she is willing to implement new strategies. Involving teachers in the planning process, moreover, will increase the likelihood that they will have a more positive attitude about the change and be more willing to make changes in their teaching practices.

There are several important findings that rise to significance in the majority of the empirical studies. Teacher professional development must be: continuous and ongoing, site-specific, connected to the student curriculum, and integrated with a comprehensive change

process to improve student learning. Furthermore, teacher professional development should involve teachers, provide sustained examination of student learning, give teachers time to collaborate with peers, use multiple data sources to evaluate effectiveness, and provide opportunities for teachers to engage in developing a theoretical understanding of the learned concepts.

Sykes (1999) proposed that teachers must be working practitioners who freely contribute to the body of knowledge that will be used to improve their skill sets. Sykes (1999) lists five components of an effective teacher professional development framework that can be used as guidance for schools when planning for teacher improvement:

1. Use the teacher-student learning connection as a criterion for the selection and design of teacher professional development.
2. Embed teacher professional development in the specific content of the student curriculum.
3. Integrate examination of student learning, using multiple sources of evidence into teacher professional development.
4. Include attention to student learning in teacher professional development associated with the implementation of curricular and instructional innovations.
5. Reference both formative and summative evaluation of teacher professional development to student learning.

Overall, the literature review conducted for the current study found that there is extensive research examining a principal's specific leadership behaviors in the design and implementation of professional development. However, there is a lack of available research

on the impact of those behaviors on teachers' willingness to make changes in the classroom that ultimately impact student achievement. So the question remains: what is it that compels a teacher to implement teaching changes in his or her classroom as outlined in an instructional plan or required by the principal?

The purpose of the current study was to assist with filling the information gap by examining the specific professional development elements suggested in the literature, teachers' perceptions of those elements, and if teacher perceptions translate into a teacher being more or less willing to make changes in the classroom to improve student performance and learning. The current study attempts to determine if there is a correlation between teachers' perceptions of professional development, their principal's instructional leadership behaviors, and the teachers' willingness to make pedagogical changes in their classrooms. The information and findings gleaned from the current study will be valuable in helping principals and principal leadership programs better prepare principals with knowledge about specific instructional leadership behaviors that more strongly encourage and influence teachers to change behaviors in the classroom to improve student performance in schools.

Chapter 3 contains a complete and detailed description of the research design that will be used to answer the two research questions. It will also include a comprehensive description of qualitative procedures used and how the data in the survey were collected and examined.

CHAPTER 3: METHODOLOGY

Introduction

The purpose of this Q-Methodology study was to understand teachers' perceptions of professional development, as well as further research to what extent that perception influences a teacher's willingness to use the tools provided in the professional development sessions to actually change his or her teaching habits within the classroom. The importance of the current study for the field of education is twofold. First, many school leaders do not fully understand what constitutes meaningful professional development that is useful to teachers. Second, if we are to seriously impact and improve public education to aptly prepare 21st- century students for the world in which they will live and work, modifying and changing teaching pedagogy is necessary; thus, teachers must be amenable to implementing new instructional practices. Principals are often the primary arbitrators of professional development in schools, enabling them to consequentially impact teaching and learning practices. In turn, then, educational leaders like principals must know what kinds of professional development and training compel teachers to seriously reflect upon their teaching practices and make significant pedagogical changes that will benefit student performance. It is imperative that principals have a complete understanding of how to plan and provide professional development that is meaningful to teachers, and which positively influences those teachers to change old or outdated practices in order to make learning more engaging and successful for students.

Q-Methodology was used as the primary tool for collecting data in the current study. This chapter will explain Q-Methodology (general overview), how Q-Methodology works (mixed-methods approach), and Q-Methodology data collection and analysis procedures.

Q-Methodology

Overview

Q-Methodology is a mixed-methods research approach first used in 1935 by William Stephenson, a simple yet innovative adaptation of the traditional method of factor analysis (Watts & Stenner, 2012). Q-Methodology allows the researcher to collect a participant's subjective thoughts on a given topic and then analyze their opinions using factor analysis, a method that effectively and scientifically examines and quantifies human subjectivity (Militello & Benham, 2010). Such human subjectivity, according to McKeown and Thomas (1988), is "nothing more than a *person's communication of his or her point of view*… subjectivity is always anchored in *self-reference*, that is, the person's 'internal' frame of reference, but this does not render it inaccessible to rigorous examination" (p. 12, original emphasis). Understanding a person's point of reference, knowledge, or perception about a topic can be difficult to quantify for scientific analysis, but Q-Methodology "provides researchers a systematic and rigorously quantitative means for examining human subjectivity" (McKeown & Thomas, 1988, p. 7). Furthermore, using Q-Methodology takes away much of the "guess work" and helps the observer see the concepts and perceptions as they are understood in the context of those being studied, through a group of persons who share a similar perspective, viewpoint, or attitude about the topic at hand.

Since the current study sought to find what characteristics about professional development are most important to teachers, as well as which aspects of professional development most influence their attitudes and willingness to make changes in their professional practices – all of which is subjective data – Q-Methodology was an ideal research method to use.

A Mixed-Methods Approach

Q-Methodology is a mixed-methods approach to research. It allows the researcher to use qualitative, subjective, contextual opinions of participants along with quantitative factor analysis to frame and define the understanding of the participants about a particular topic.

Quantitative research refers to the systematic, empirical investigation of social phenomena via statistical, mathematical, or computational techniques (Given, 2008). Conversely, qualitative research is a method of inquiry employed in many different academic disciplines, though traditionally the social sciences, wherein qualitative researchers aim to gather an in-depth understanding of human behavior and the reasoning that governs such behavior. Merriam (2002) defines qualitative research as that which seeks to uncover "how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (p. 14). Simply put, the qualitative method investigates the subjective "why" and "how" of decision making, not just the more objective elements like "what," "where," or "when" *(*Denzin & Lincoln, 2005).

In the current study, the Q-Methodology measured and quantified personal, subjective opinions as the researcher searched to find patterns in and across the sampling group about teachers' perceptions of professional development. As noted earlier, qualitative research

seeks to understand, as opposed to simply count, the opinions and responses of the participants about a specific topic. Accordingly, this qualitative study sought to understand teachers' perceptions of professional development as determined by observing the perceptions of teachers. This research is especially important today, because it is vital for principals and school leaders to have a thorough understanding of how teachers perceive professional development. Armed with this understanding, school leaders can plan for and position themselves to have a greater influence on teachers' understanding of professional development and willingness to make pedagogical changes in classrooms. Q-Methodology allowed the researcher to analyze individual responses from a group of teachers by comparing them to a set of established, peer reviewed statements. By using the Q-Methodology, characteristics emerged that show the similarities and dissimilarities in the sampling group's feelings about certain elements of professional development, instructional leadership, and the influence of either upon them. Through the current study's findings, the researcher was able to identify distinct elements of effective professional development, as well as describe teachers' attitudes and perceptions about such professional development training and the instructional leadership that supports it.

Appropriateness of the Approach

To answer the research question, a method was needed that measured and quantified personal attitudes and perceptions from a group of people about a specific topic. Generally, qualitative approaches offer the researcher opportunities to achieve an understanding of how people make sense out of their experience, define the process, and describe how people interpret what they experience (Merriam, 2009). Specifically, Q-Methodology seeks to

ensure that self-reference is preserved when measuring participants' subjective opinions and attitudes about a specific topic, rather than being compromised by, or confused with, an external frame of reference brought by the researcher (McKeown & Thomas, 1988). Using Q-Methodology in the current study allowed the researcher to measure, quantify, and analyze the beliefs and attitudes of teachers surrounding professional development in public schools.

Research Question

This qualitative research study was guided by one primary research question: What are teachers' perceptions of effective professional development that encourages them to reflect upon and make changes to their teaching practices?

The Concourse Theory Used to Develop the Q-Sample

The current Q-Methodology study began by creating a set of statements based on a robust literature review of the topic and a semi-structured interview with a sampling of education experts about the topic to be researched. The statements for the concourse can come from many sources, including interviews, books, journals, newspaper articles, and other documents. From the concourse, a group of statements that are representative of the entire concourse, called the "Q-Sample," was culled and created.

The Q-Sample is the "collection of stimulus items that is presented to respondents for rank ordering in a Q-Sort" (McKeown & Thomas, 1988, p. 25). According to Watts and Stenner (2012), there is no single or correct way to generate the Q-Sample, as it depends on the research question(s) and the characteristics specific to each individual study. The Q-

Sample for the current study was structured; it was not created quickly or without extensive thought. As the label implies, the Q-Sample was fashioned using a set of subjective statements that were created from multiple sources of information, including interviews, journals, books, and other documents. For the purpose of the current study, a ready-made Q-Sample or set of statements was not used, and instead a collection of statements were culled from an exhaustive literature review and several sampling interviews. The original concourse consisted of 120 statements related to professional development. The researcher printed all of the 120 statements, cut them into strips, and arranged them into similar groups. Over time, the researcher eliminated statements that did not directly relate to the research question focusing on teachers' perceptions of professional development.

Each of the individual statement cards was laid out on the floor into columns by the researcher, hoping to create an easy-to-read visual that would include all the statements. As the statements were placed on the floor, the researcher would rearrange them to move similar or like statements into the same columns. The researcher continued this process for a time period of about one week, constantly sorting, moving, and adjusting statements that seemed similar in meaning. From this process, nine similar or thematic groups emerged. After it appeared that all the statements were grouped appropriately and similarly, the researcher then named the groups based upon the general ideas, philosophies, and wording included in the statements in each column. The nine themes were named: Collaboration, Principal Leadership, Support Structure, Teacher Input, Teacher Learning, Student Learning, Job Embedded, Assessment, and Reflection. Within each thematic group, the researcher then removed statements that were similar or repetitive and continued sorting, combining, and

removing statements until only 34 separate statements that were representative of the current research and opinions on professional development remained. The last step in preparing the Q-Sample was to gather feedback from a group of professionals in the field about the list of statements. The researcher asked six school administrators and six teachers to review the final 34 statements and provide feedback on the clarity and meaning of the statements.

The six school administrators asked to review the statements were made up of three males and three females with a wide range of backgrounds, experiences, and years in education. The men ranged from 27 to 34 years of age, while the women ranged in age from 26 to 52. The men had a collective teaching experience of 15 years in high-school math and middle-school social studies. The women's collective teaching experience was 12 years in elementary education, high-school English, and high-school science. Most of the administrators had just recently exited their roles as classroom teachers, with five of them having less than 2 years administrative experience while one administrator had 12 years of experience.

The six teachers asked to review the statements had a wide range of backgrounds, experiences, and years in education. There were two male teachers and four female teachers, with the men ranging from 30 to 43 years of age and the women ranging from 26 to 62 years of age. The collective experience for the men was 24 years teaching high-school science. The teaching experiences for the women included a collective 48 years teaching at the high-school level in the areas of Career and Technical Education, Health and PE, and Special Education.

There were four questions for clarification and development used to guide the six school administrators and the six teachers as they reviewed the 34 statements, and they are listed below:

1. Is the wording in the statements clear? If not, what changes do you suggest?
2. Are there any statements that are similar in nature and should be combined?
3. Are there any statements that you would remove from the list?
4. Are there any statements that you would add to the list?

Overall, the consensus from the reviewers was that the statements were accurate with regard to current practices and beliefs about professional development and should be accepted. However, there were quite a few suggestions to improve word choices and to clarify the meaning of statements, described in detail below:

- Statement 4 originally read, "In schools with effective professional development, time is provided for collaborative work." One administrator felt that the statement was similar in meaning to Statement 1, which read, "Effective professional development requires teachers to collaborate." They therefore concluded that the wording in Statement 4 should be changed to more aptly reflect the theme for the category in which it was placed. One statement indicates that teachers should work together and the other statement indicates that structures or blocks of time should be created so that teachers can work together. Thus, since Statement 1 indicated that effective professional development requires teachers to collaborate and was placed under the theme "Collaboration," Statement 4 was changed to indicate that effective

professional development allows blocks of time for teachers can collaborate, and the statement was placed under the theme "Structure."

- Statement 6 read, "Effective professional development builds a culture where there exists a norm of continuous improvement that recognizes learning about best practices is never finished." Most of the reviewers considered the statement to be awkward and poorly worded, so the statement was changed to read, "Effective professional development helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished." Although Teacher 3 questioned if the phrasing "and never finished" needed to be included, the researcher kept the phrase.
- Administrators 1, 3, 5, 6, along with Teacher 3, considered the meaning of Statement 8 unclear, so it was amended. Originally, Statement 8 read, "Effective professional development focuses on student learning, helping teachers to analyze the skills and understandings that students are expected to know and do." After discussion, Statement 8 was changed to, "Effective professional development focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate."
- There was agreement among Administrators 2 and 6 that Statement 17 was imprecise. Statement 17 originally read, "Effective professional development is long-term, sustained, and content-focused in-depth training." It was altered to remove the phrase "in-depth training."

- Administrators 4 and 5 agreed that Statement 19 was vague in its meaning. Statement 19 originally read, "Effective professional development uses the evaluation of multiple data sources to measure teacher and student learning." Among the group, two questions were asked: Are we evaluating data sources or are we evaluating student achievement? How does one measure teacher learning?" To circumvent any lack of clarity, Statement 19 was changed to read, "Effective professional development uses multiple data sources to measure teacher and student performance and learning."
- Administrator 3 and Teacher 1 indicated that Statement 33 should be clarified. Statement 33 read, "Effective professional development is part of a 'grand plan' in the school that is implemented in small, incremental chunks." While the statement spoke to the structure for professional development within a school, it was not clear why or how the statement fell under the Leadership theme. The researcher reviewed the sources from which the statement was created, finding that the sources did, indeed, indicate that the school principal was to provide structure and support in the way of a long-range plan with multiple benchmarks or goals along the way. Thus, the statement was deemed unclear, and Statement 33 was rewritten to read, "Effective professional development is part of a 'grand plan,' facilitated by school leaders, that is implemented in small and incremental chunks."
- Teacher 2 questioned the similarity between Statement 1 and Statement 2. Statement 1 read, "Effective professional development requires teachers to collaborate," and Statement 2 read, "Effective professional development requires the principal to

actively encourage teachers to collaborate and support each other." However, the teacher later agreed that there was, in fact, a difference between teachers working together and school leadership encouraging teachers to work together, so the researcher made no changes.

The goal of this phase was to create a Q-Sample that was representative of the wide range of existing opinions and practices about the topic of professional development. Table 3.1 identifies the final statements about professional development derived from the literature review, with sources indicated, and amended as needed with administrator and teacher input.

Table 3.1: Q-Sample Statement Cards

No.	Statement	Source(s)	Themes
1	Effective PD requires teachers to collaborate.	Elmore & Burney, 1999 Gimbel et al., 2011 Lieberman et al., 2000 Militello et al., 2009	Collaboration
2	Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	Blase & Blase, 2000	Collaboration Principal Leadership
3	Effective PD uses peer coaching.	Elmore & Burney, 1999 Showers, 1990	Collaboration
4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.	Blase & Blase, 2000 Hirsh, 2005	Support Structure Collaboration Principal Leadership
5	Effective PD is aligned to the school's mission, vision, and values.	Elmore & Burney, 1999 Guskey, 2000 Hawley & Valli, 1999	Support Structure Teacher Input Principal Leadership

**PD= Professional Development*

Table 3.1 (continued)

No.	Statement	Source(s)	Themes
6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	Elmore & Burney, 1999 Darling-Hammond, 2010 Guskey, 2000 Sykes, 1999	Support Structure Teacher Learning Student Learning
7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	Darling-Hammond, 2010 Elmore & Burney, 1999 Thompson & Zeuli, 1999	Job-Embedded Teacher Learning Student Learning
8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	Darling-Hammond, 2010 Elmore & Burney, 1999 Hirsh, 2005 Militello et al., 2009 Sykes, 1999	Teacher Learning Student Learning
9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	Hawley & Valli, 1999 Militello et al., 2009 Sykes, 1999 Thompson & Zeuli, 1999	Support Structure Job-embedded Teacher Learning Student Learning
10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	Elmore & Burney, 1999 Hawley & Valli, 1999	Support Structure Teacher Learning
11	Effective PD provides learning opportunities that reflect the individual needs of teachers.	Hawley & Valli, 1999 Sykes, 1999 Thompson & Zeuli, 1999	Support Structure Teacher Learning

**PD= Professional Development*

Table 3.1 (continued)

No.	Statement	Source(s)	Themes
12	Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do "one type" of teaching.	Blase & Blase, 2000 Elmore & Burney, 1999 Thompson & Zeuli, 1999	Teacher Learning
13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.	Blase & Blase, 2000	Support Structure Teacher Input
14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	Gimbel et al., 2011 Guskey, 2000 Hawley & Valli, 1999	Support Structure Teacher Input Principal Leadership
15	Effective PD aligns with the assumptions and beliefs of staff members.	Hirsh, 2005	Teacher Input
16	Effective PD promotes and tests new ideas that may seem difficult or threatening.	Darling-Hammond, 2010 Lieberman et al., 2000	Support Structure
17	Effective PD is long-term, sustained, and content focused.	Blase & Blase 2000 Darling-Hammond, 2010 Elmore & Burney, 1999 Hawley & Valli, 1999 Militello et al., 2009 Showers, 1990 Sykes, 1999	Support Structure Teacher Learning
18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	Blase & Blase, 2000 Darling-Hammond et al., 1999 Elmore & Burney, 1999 Sykes, 1999 Thompson & Zeuli, 1999 Wagner, 2008	Student Learning Teacher Learning

**PD= Professional Development*

Table 3.1 (continued)

No.	Statement	Source(s)	Themes
19	Effective PD uses multiple data sources to measure teacher and student performance and learning.	Hawley & Valli, 1999 Hirsh, 2005 Showers, 1990 Sykes, 1999	Assessment
20	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	Hawley & Valli, 1999 Sykes, 1999	Assessment
21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	Darling-Hammond, 2010 Darling-Hammond et al., 1999 Elmore & Burney, 1999 Howey, 1985 Sykes, 1999 Thompson et al., 1999 Thompson & Zeuli, 1999	Teacher Learning Student Learning
22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.	Darling-Hammond, 1999 Hawley & Valli, 1999 Hirsh, 2005, Sykes, 1999 Thompson & Zeuli, 1999	Collaboration Teacher Learning Student Learning
23	Effective PD fosters academic learning of both the teacher and student.	Darling-Hammond et al., 1999 Sykes, 1999 Thompson & Zeuli, 1999	Teacher Learning Student Learning
24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	Darling-Hammond et al., 1999 Sykes, 1999 Thompson & Zeuli, 1999	Support Structure

**PD= Professional Development*

Table 3.1 (continued)

No.	Statement	Source(s)	Themes
25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	Darling-Hammond et al., 1999 Elmore & Burney, 1999 Sykes, 1999 Thompson & Zeuli, 1999	Teacher Learning
26	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	Blase & Blase, 2000 Darling-Hammond et al., 1999	Reflection
27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	Blase & Blase 2000 Elmore & Burney, 1999 Thompson & Zeuli, 1999	Reflection Teacher Learning Student Learning Principal Leadership
28	Effective PD requires the principal to be familiar with learning and pedagogy, curriculum development, supervision, and evaluation of teachers.	Darling-Hammond, 2010	Principal Leadership
29	Effective PD requires a principal that views his or her role as that of an educational executive, guiding instructional change.	Finn, 1991 Gaziel, 2007	Principal Leadership
30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	Elmore & Burney, 1999 Lieberman et al., 2000	Principal Leadership Support Structure

**PD= Professional Development*

Table 3.1 (continued)

No.	Statement	Source(s)	Themes
31	In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	Blase & Blase, 2000 Gimbel et al., 2011 Showers, 1990	Principal Leadership
32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	Blase & Blase, 2000	Principal Leadership Support Structure
33	Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks.	Elmore & Burney, 1999 Hawley & Valli, 1999 Sykes, 1999	Principal Leadership Support Structure
34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	Blase & Blase, 2000 Hawley & Valli, 1999 Militello et al., 2009	Principal Leadership Support Structure

**PD= Professional Development*

The final 34 statements in Table 3.1 were each printed on small, randomly numbered business-sized cards. The randomly selected numbers on the cards were important and enabled the researcher to later match the number from the participants' Q-Sort to the actual statement. The statement cards were used as the main research instrument during the Q-Sorts.

Site Selection

Teachers from a high school in the largest K-12 education agency in North Carolina providing regular and special instructional programs for children in kindergarten through high school, as well as pre-kindergarten services for special needs students, participated in this study. The county school system has approximately 160,000 students in over 170 schools, and offers school bus transportation, child nutrition, counseling, athletic programs, and other operations to support instructional programs. The district in North Carolina has a renowned reputation as being a high-achieving school district, with graduation rates and end-of-year test scores exceeding the national averages.

Participants: P-Sample

For the current study, two sets of participants were required: 1) participants to review the Q-Sample statements and give feedback; and 2) participants (P-Sample) to sort the Q-Sample statements and to take part in post-sort interviews using questions found in Appendices B and C. Below, the researcher describes the procedures used for deriving a sample for both the review of the Q-Sample and the post Q-Sort Interviews.

As noted earlier, Q-Methodology employs both quantitative and qualitative characteristics. McKeown and Thomas (1988) noted, "Specific sampling principles and techniques important to mainstream behavioral research are not necessarily relevant to person sampling in Q given the contrasting research orientations and purposes" (p. 36). Therefore, sampling does not follow a traditional approach that requires a set number of participants.

The population for the current study can be described as a convenience sampling. As described in Merriam (2009) and implied by the term itself, convenience sampling is a selected sample "based on time, money, location, availability of respondents and so on" (p. 79). A small group of administrators and teachers from the school where the researcher worked was used to review and provide feedback on the clarity and understanding of the Q-Sample statements. A second group consisting of 43 teachers from a local high school were administered the Q-Sort; besides the school being in close proximity to the researcher, the teachers already gathered regularly at the school and made the scheduling of such a large study group less problematic. After the Q-Sort, the teachers recorded the distribution of the cards onto a blank grid. All participants completed a written post-sort questionnaire (Appendix B) so that the researcher could gather simple descriptive data about each participant and his or her thoughts about the Q-Sort. Some of the P-Sample participants were later selected to take part in a more in-depth, face-to-face interview after the Q-Sort, answering a set of questions included in Appendix C.

Q-Methodology does not need large numbers of participants and it is not interested in "head counts," only requiring enough participants to establish the existence of its factors. An accepted approximate figure is 40-60 participants, although good studies can be carried out with considerably less participants. For statistical reasons, it may also be sensible to operate using a number of participants that is less than the number of items in the Q-Sample. It is possible to generalize from Q-Methodological findings, but typically not to a population of people. One can, however, generalize in relation to concepts, categories, theoretical propositions, and models of practice (Watts & Stenner, 2012).

Data Collection

The research project data collection included two phases. Phase I involved conducting the Q-Sorts and completing the factor analysis. Phase II included conducting post Q-Sort interviews.

Data Collection Phase I: The Q-Sort

As stated earlier, a deck of business-size cards, each containing one statement from the Q-Sample, were sorted by the participants into a distribution grid (see Figure 3.1). The statements used in the Q-Sort are displayed in Table 3.1. Participants, referred to as the P-Sample, were allowed as much time as needed to determine the placement of each statement on the distribution grid. A random number was printed on the face of each card in order to later match each statement with the distribution grid placement from each participant. Before each sort, participants received and signed a consent form (Appendix D). Participants also received written instructions (Appendix B) detailing the simple procedures for the Q-Sort. After the Q-Sort was completed by all participants, the data was entered into a program called PQMethod to perform a by-person factor analysis and generate statistical interpretations of the Q-Sorts.

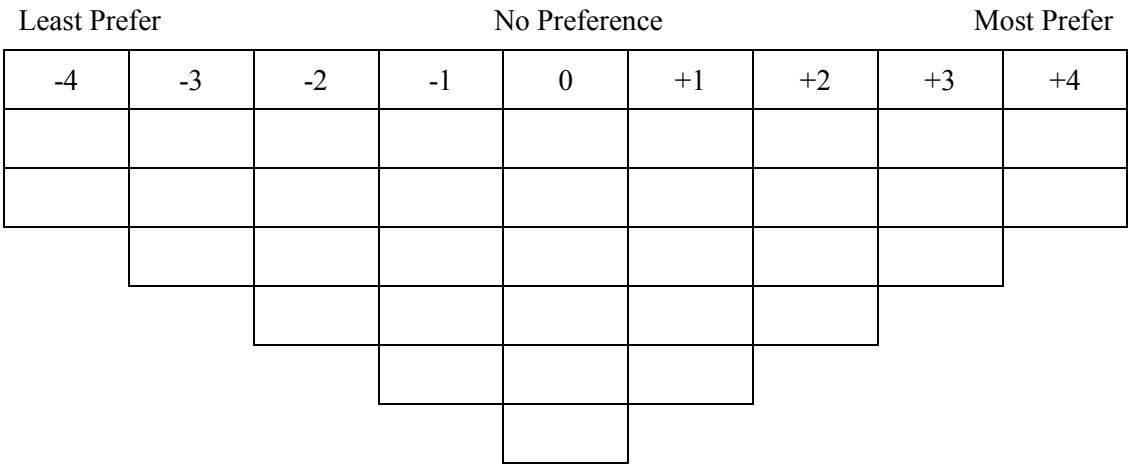

Figure 3.1: Q-Sort Distribution Grid

Data Collection Phase I: Post Sort Questionnaires

After the participants completed the Q-Sort and filled in their individual distribution grids, they were asked to answer survey questions designed to glean a deeper understanding of the perceptions, background, and reasoning for their placement of the statements (see Appendix B). Participants were asked to explain their rationale for placing cards in the "Most Prefer" and "Least Prefer" columns of the distribution grid. Participants were also asked about their perceptions of their roles in implementing ideas and strategies learned from professional development training, as well as about their principals' role in facilitating the professional development of teachers. Next, ten individuals were contacted to complete more formal, face-to-face interviews about their Q-Sorts.

Data Collection Phase II: Post Sort Interviews

In all forms of qualitative research, some of the data are collected through interviews; such is also true with Q-Methodology. DeMarrais (2004) defined the interview as "a process in which a researcher and participant engage in a conversation focused on questions related to a research study" (p. 55). In other words, an interview is not conducted simply to give the researcher an opportunity to talk with participants, but it is, in fact, a dialogical conversation with purpose. The purpose of the post Q-Sort Interview is to obtain special kind of information about that which is "in and on someone else's mind" (Patton, 2002, p. 341).

The researcher interviewed ten selected participants from the P-Sample to find out what could not be directly observed or obtained from the Q-Sort. Participants were selected for the more in-depth, post-sort interviews based on two criteria: (1) they volunteered and agreed during Phase I to take part in an interview, and (2) they represented a specific viewpoint of a factor that emerged in the current study – specifically, teacher perspectives on professional development. The researcher could not observe feelings, thoughts, and intentions about why a participant chose to sort statements in a particular way, therefore the purpose of the post-sort interview was to allow the researcher to better understand the participants' perspectives about their respective Q-Sort statement arrangements. In addition, after the Q-Sort, the researcher looked to determine what motivates teachers to make changes in their classrooms with regard to the trainings they have been offered: Do their attitudes and perspectives about professional development impact their willingness to use the information learned to change their teaching practices in some way?

Participants who were selected to participate in Phase II interviews signed and received a consent form (see Appendix E) indicating their agreement to take part in a short post-sort interview. The interviews (see Appendix C) were structured and recorded using a digital recording device. The interviews and responses were transcribed according to qualitative research standards of practice and then used to supplement the statistical interpretations of the Q-Sorts after they had been run through the PQMethod program.

Data Analysis

The data was analyzed in two phases. In Phase I, the data from the Q-Sorts and post-sort questionnaires were entered into a program called PQMethod to generate a factor analysis of the Q-Sorts. The second phase of the data analysis was reviewing the post sort questionnaires that were conducted with those participants with Q-Sorts that yielded outlying factors.

The data was analyzed using PQMethod 2.06 software (Atkinson & Schmolck, 2013). In keeping with common practice in Q-Methodology, principle component analysis was used to find associations (a correlations matrix) among different Q-Sorts (Brown, 1986, 1993). These initial factors were then rotated to simple structure with the Varimax method. Model sorts or factor arrays emerged, each representing a sub-set of the participants.

The PQMethod software created a correlation matrix among participants based on overall statement rankings from their Q-Sorts, performed factor analysis on the matrix, and rotated factors to increase the number of respondents with high factor loadings. The participants were matched to the factor that explained the most variance in their statement

rankings. PQMethod requires researchers to choose the number of factors to analyze, and each factor effectively represents a grouping of participants with similar Q-Sorts.

The primary methods of data collection included in-depth, semi-structured interviews (Merriam, 1988; Patton, 1990). As Patton (1990) stated, "The purpose of interviewing is to find out what is in and on someone else's mind. Qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit" (p. 278). Thus, the utilization of in-depth interviews provided the researcher with data based on contexts, human activity, and intuitive knowledge (Marshall & Rossman, 1999). The interviews were digitally recorded, transcribed verbatim, and locked in a secure location. The researcher used open coding to identify major categories of information gathered from the interviewees. Similar statements that provided an understanding of how participants' experiences with professional development shaped their perceptions were noted. The interview statements were then grouped to form themes and patterns which were subsequently analyzed to help understand how the participants made meaning of their shared experiences with professional development.

The researcher used member data checks throughout the data collection and data analysis phases, a practice which enabled the participants to confirm the findings, add to the findings, or to clarify any misunderstandings on the part of the researcher. Conducting the member checks also helped the researcher in decoding the data correctly and allowed the participants' voices to be appropriately represented. Furthermore, this practice eventually led to a point of saturation wherein the ongoing analysis was repeating, thereby confirming prior

data collected (Creswell, 2003; Glaser & Strauss, 1967; Marshall & Rossman, 1999; Miles & Huberman, 1994).

Validity (Credibility)

Validity refers to "the question of how research findings match reality" (Merriam, 2009, p. 213). Researchers must determine: "Are we observing or measuring what we think we are measuring?" A scale or instrument is said to be valid if it can successfully measure what it claims to be measuring. In the case of the current study, statements in the concourse must adequately reflect the respondents' actual beliefs or perceptions about professional development and instructional leadership. Q-Methodology claims to capture the viewpoints or perceptions of its participants in the form of their Q-Sorts, when study participants arrange the statements according to which they prefer most or least. Q-Methodology recognizes that each person's viewpoint or perspective might be different. Q-design requires that a small sample of participants sort a set of statements based on their own perspectives and, then, once the data analysis is completed, the researcher should use all of the individual responses to form one single perspective that is consistent among the participants (Watts & Stenner, 2012). The single perspective will "typically lead to unprecedented levels of agreement and intercorrelation among the Q-Sorts produced, particularly when they are compared with the Q-Sorts that reflect the participant's own perspectives" (Watts & Stenner, 2012, p. 52).

Reliability (Dependability)

Reliability refers to the extent to which the findings from research could be replicated in future studies. In other words, if another researcher replicated the current study, would they find the same results? Q-Methodology provides a rich, robust data set that provides both perceptional and actual vantage points of reference (Militello & Benham, 2010). Still, as Merriam (2009) noted, "reliability is problematic in the social sciences simply because human behavior is never static" (p. 230). That is, we must remember that there is no single right or wrong perspective or reality when studying people's beliefs and perceptions.

In the current study, participants sorted statements based on their perceptions, but the researcher was able to discover more about these viewpoints during the post-sort interviews. To ensure reliability in the current study, the researcher kept a clear audit trail, which "describes in detail how data were collected, how categories were derived, and how decisions were made throughout the inquiry" (Merriam, 2009, p. 223). The audit trail for the current research study included personal notes, transcribed interviews, semi-structured interview guides, protocol handouts, Q-Sort instruction handouts, and other forms and information delivered to and collected from participants.

Generalizability (Transferability)

Generalizability refers to the applicability of findings from one setting or group of people to other settings and people (Bogdan & Biklen, 2003). With regard to the principal of generalizability and the current study, then, the question is: will the findings from the current study hold up beyond the specific participants and setting unique to this particular study, and

can future researchers "transfer" the current study's findings to other, new situations? Arguably, it would be difficult to presume the findings of the current study might be the same with a larger population. Instead, the current study produced findings that are specific to the group and situation studied; therefore, the findings may provide information consistent with a general perception among teachers about professional development. Researchers must nonetheless be reminded that perceptions among teachers about professional development tend to vary based on their past history, current situations, and variety of experiences.

Subjectivity Statement

It is important for the reader to understand the researcher's previous experiences and beliefs related to the study, since the researcher's experiences shape the perceptions and interpretations of information gleaned from studies. Thus, the following subjectivity statement is offered for the purpose of giving the reader specific details of the researcher's experiences with professional development, as well as providing an element of transparency to the research process and the researcher's views.

The researcher, E. McFarland, is a white male born in Greensboro, North Carolina in 1966, and currently lives in Raleigh, North Carolina. E. McFarland attended the University of North Carolina at Greensboro, earning a Bachelor's degree in Music Education in 1990. Between 1990 and 2000, he spent nine years as a classroom teacher while attending graduate school. E. McFarland earned a Master of Education in School Administration degree at the University of North Carolina at Greensboro in 2000, at which point he became an assistant principal in Wake County, North Carolina.

The researcher was appointed principal of Aversboro Elementary School in 2002. In August 2005, he enrolled in the Educational Administration and Leadership doctoral program at North Carolina State University in Raleigh, North Carolina. E. McFarland was appointed as Principal at Fuquay-Varina High School in August 2006, and in 2013 he became the Area Superintendent.

The researcher is most comfortable with the constructivist paradigm, a qualitative approach that emphasizes individual perspectives or constructions of reality. Hatch (2002) wrote, "While acknowledging that elements are often shared across social groups, constructivist science argues that multiple realities exist that are inherently unique because they are constructed by individuals who experience the world from their own vantage points" (p. 15). Constructivist research uses naturalistic, qualitative research methods of data collection. In the current study, the researcher sought to understand teachers' perceptions of professional development and to what extent those perceptions influence their willingness to use the tools provided in the professional development sessions to actually implement new plans, change teaching habits or pedagogies, and improve student achievement within their classrooms. Q-Methodology is the perfect qualitative research approach to use in the current study, as it is a simple yet innovative adaptation to the traditional method of factor analysis. Q-Methodology allowed the researcher to collect participants' subjective thoughts on a given topic and analyze their opinions using a factor analysis.

The researcher has always believed, as both a teacher and administrator, that continual and ongoing learning is the only way to improve an individual's skills in their chosen area of work. While working in roles as both a teacher and an administrator, the

researcher has attended much professional development and admits that he often questioned the purpose and rewards of the experience. Staff development is supposed to be something that makes us better, something that inspires us to want to reflect, work, and change so that we are always improving for the benefit of our students and our school community. However, much of the professional development attended by the researcher was required, chosen by others, taught by mediocre presenters, and offered only small bits of useful information. The researcher knows, then, from personal experiences, that unique, well-planned, and research-based professional development offered in a school can create an invigorating working environment in which constant growth becomes the norm and wherein a culture of continuous learning is developed.

The researcher has always had a keen interest in curriculum and instruction. He holds an add-on licensure in curriculum and instruction and has attended numerous classes and semester-long courses on the subject. Understanding classroom instruction, the curriculum requirements, and the reflection process needed to foster growth, the researcher knows that administrators and teachers can drastically improve their craft and, ultimately, the experience and successes of their students. Moreover, long-term, well-planned, instructionally-focused training can benefit and improve schools as a whole.

It is the principal's responsibility in each school to plan for and foster the educational growth of the teachers and the students. Professional development is the most important factor available to teachers and administrators that might alter the course of what is going on in our public schools. The researcher's first goal in conducting the current study was to understand what it is that teachers really want from professional development, and what will

make them actually change their classroom instructional practices. Second, the researcher wanted to pass this vital information on to other school administrators who, too often, fall into the same trap of providing in-service training merely to satisfy the established professional development requirements.

Ethical Issues

Human participants were used in the current study, asked to sort cards about their beliefs about effective elements of professional development and to answer questions about their perceptions of the school leadership's role in facilitating the professional development activities. Because the research project uses humans as participants, the researcher followed steps to ensure that the research participants were protected, as outlined below:

- The study was submitted to the Institutional Review Board at North Carolina State University, and approval was awarded before any research was conducted.
- Participants signed an informed consent letter before the Q-Sorts and interviews were completed.
- Participants were allowed to stop during any portion of the Q-Sort or interviews, and they were also allowed to withdraw from the study at time.
- All data was coded to exclude names and identifying descriptions in order to protect the privacy of the participants.
- All data related to the current study was kept on a password-protected computer to which the researcher alone had access. Data was saved to an external hard drive and secured in a filing cabinet to which only the researcher had access.

- All printed material relating to the current study and findings were stored in a filing cabinet that the researcher alone could access.

Limitations of the Study

The generalizability of the study's findings was limited by the low number of total participants, the non-random group of principal participants, and the small geographic area represented by the participants. The goal of the study was to conduct approximately 35-40 Q-Sorts and 6-10 teacher interviews. In fact, the study conducted 43 Q-Sorts and 10 post-sort interviews in total, and these activities helped to form an understanding of teachers' perceptions about professional development. Notably, caution must be used when attempting to apply the findings and conclusions of the current study to other groups and situations. The researcher has selected participants that were most accessible, so the teachers used in the current study may not be representative of teachers in other districts, states, and countries. Further research would be needed in order to apply the findings of the current study to other areas

The researcher's lack of experience in conducting research projects is another limitation of the current study. The researcher was a novice who had spent the majority of his educational career as a school administrator before conducting the current study. Although his limited exposure to the field of research has expanded through the course of his doctoral coursework, the current study nonetheless marks the researcher's first attempt at using a mixed-methods, Q-Methodology approach.

Chapter Summary

In this chapter, the Q-Methodology used in the current study was summarized and the methods used to conduct the study were outlined, including building the concourse, developing the Q-Set, facilitating the Q-Sorts, and conducting the post-sort interviews. Additionally, specific techniques used to collect data from the participants, while protecting their identities, were listed. In Chapter IV, the statistical results of the study are provided, discussed, and expanded upon, using the participants' interviews.

CHAPTER 4: FINDINGS

Introduction

The purpose of the current Q-Methodology study was to understand teachers' perceptions of professional development. The current research also investigated to what extent teachers' perceptions influenced their willingness to use the tools provided through professional development to actually change their classroom teaching habits.

It was important to the researcher to investigate the research questions directly, through the lens of classroom teachers that have the most direct contact with students each day in schools. There are many theories, models, and written information about best practices for professional development, but arguably the most valuable information is what teachers find useful and, more importantly, are willing to implement into their daily work of teaching. The current study worked to find answers about effective professional development practices from the very people that are most often the targets of professional development— teachers.

An unvarnished, factual, and strict account of the findings and insights by participants in the current study are provided in this chapter. The results of the factor analysis derived from the Q-Sorts and the qualitative data gathered through post-sort interviews are presented, and the statistical results of the Q-Sorts are displayed and analyzed. Post-sort individual and focus group interviews are also examined.

Q-Methodology is a mixed-methods approach that allowed the researcher to use quantitative factor analysis and qualitative, subjective, contextual opinions of the participants. In the current study, the teachers framed and defined their understanding about

elements of effective professional development by sorting a set of statements about professional development on a distribution grid from "least prefer" to "most prefer." After conducting a factor analysis, the researcher then created a correlation matrix created to show to what extent each teacher's sort was similar or dissimilar to all the other teacher sorts in the study. Once the correlation matrix was completed, the researcher set about investigating responses from the teachers searching for similarities and connections among their sorts, written, and oral responses. The researcher was looking for emerging factors or "connections" among the teachers about why they sorted statements in a particular way and what reasons they gave for sorting statements that were important or not important to them. The information gleaned was used to name the emerging factors from the groups of teachers who sorted statements similarly, and whose written and oral accounts indicated compatible perceptions and beliefs about effective elements of professional development.

This chapter will be divided into two sections. First, the analytics used in the factor analysis, in order to uncover findings about teachers' perceptions of effective professional development practices, will be examined; these include: 1) Correlation Matrix; 2) Factor Analysis; 3) Humphrey's Rule; and 4) Factor Loadings. The subsequent section adds meaning and depth to the findings using the PQ Method analytics and the written and oral information from participants to describe and name each factor, and includes multiple tables, figures, and descriptions about each factor. A summary of the findings concludes the chapter.

Analytics

Correlation Matrix

PQ Method (2.33), the Q-Methodology analytics program specifically created to analyze Q-Methodology data, first calculates a correlation matrix. The program's matrix displays the extent to which each participant's sort is similar or dissimilar to all the other participants (Brown, 1980). Principal component analysis is used to develop a correlation matrix among the different Q-Sorts (Militello & Benham, 2010), a correlation which "provides a measure of the nature and extent of the relationship between any two Q-Sorts and hence a measure of their similarity or otherwise" (Watts & Stenner, 2012, p. 97). In other words, a correlation matrix indicates how well each participant's sort agrees or disagrees with another's sort.

In the current study, the matrix measured 42x42, based on the number of participants (n = 42), and displayed correlation coefficients ranging from -1.0 to +1.0. A correlation of +1.0 represents a perfect match with each card sorted in the exact same column as another participant. A correlation of -1.0 represents perfect opposing sorts with all cards falling on the exact opposite column as another participant. For example, Participants 5 and 23 had a correlation matrix sort value of .65, a high correlation. Accordingly, it would be expected that these two participants would have similar Q-Sorts and similar interview statements about those sorts, and that the two participants would fall under the same factor loading; indeed, results showed that they did. On the other hand, Participants 16 and 24 had a very low correlation matrix sort value of -.34, and as such these two participants would not be expected to have similar Q-Sorts or similar interview statements about those sorts, nor would

they be expected to fall under the same factor loading; as expected, results showed that they did not. Notably, no sorts in the study were exactly alike. Table 4.1 below provides an abbreviated correlation matrix.

Table 4.1: Correlation Matrix between Sorts (truncated)

Sorts	1	2	3	…	40	41	42
1	1.0	.09	-.14	…	.46	.41	.26
2	.09	1.0	.28	…	.40	.25	.17
3	-.14	.28	1.0	…	.01	.11	-.16
…	…	…	…	…	…	…	…
40	.46	.40	.01	…	1.0	.43	.20
41	.41	.25	.11	…	.43	1.0	.16
42	.26	.17	-.16	…	.20	.16	1.0

Factor Analysis

The next step in the data analysis process is the factor analysis. Factor analysis organizes Q-Sort data into meaningful groups based on factor loadings. Viewing the factors enables a researcher to examine groups of participants who have rank-ordered the Q-Sort items in a similar manner (Watts & Stenner, 2012). Q factor analysis serves to group participants, as opposed to grouping survey questions as in traditional R studies (McKeown & Thomas, 1988). According to Brown (1980), "If two persons are like-minded on a topic, their Q-Sorts will be similar and they will both end up on the same factor. Hence, we do not classify them; they classify themselves on their own terms, which emerge as factors" (p. 208). When highly corresponded Q-Sorts are clustered together, a similarity emerges that is

named as a factor. The researcher then uses the characteristics, survey questions, and interview information from participants in each factor group to name the factor.

Using the correlation matrix, PQMethod software was employed to cluster the sorts into eight unrotated factors. In deciding on how many factors to use, multiple pieces of data informed and justified the decision to move forward with the number of factors finally chosen; in the current study, four factors were selected. The researcher first ran the data together and examined the unrotated factors, and then developed a Scree Plot (see Figure 4.1) using the Eigen Values to help determine where a noticeable change or "elbow" existed between the factors. Eigen Values of less than 1.00 are often considered the cut-off point in determining the factors used for a Q-Methodology study (Watts & Stenner, 2012). In the current study, all eight factors had Eigen Values over 1.00. The first factor had an Eigen Value of 9.79; the second had an Eigen Value of 3.72; the third had a value of 3.27; the fourth had a value of 2.86; and the fifth had a value of 2.46. The Eigen Values for the sixth, seventh, and eighth factors were 2.24, 1.98, and 1.59 respectively.

After analyzing the Eigen Values for factor strength, the researcher realized that a distinct "elbow" formed after Factor 1. Notably, Q-Methodology studies with a single factor do not provide robust results, and in these results, Factor 1 accounted for a 23% variance among the Q-Sorts and, thus, did not represent a large enough variance to exclude rotating other factors. Using Factors 1 through 3 accounted for 40% of variance among the sorts, and adding Factor 4 pushed the percentage of accounted variance to 47%. Employing five factors resulted in an explained variance level of 53% but only included 30 of the completed 42 Q-Sorts, and the researcher felt that excluding 12 participant sorts was too much information to

lose. Using four factors lowered the explained variance percentage to 47% but raised the number of participant Q-Sorts included to 37 of the original 42 in the study, and the researcher believed it was important to have as many participant sorts as possible included in the study. Choosing which factors to eliminate was assessed based on the fact that factors with very similar Eigen Values can mean that the factors are too alike to interpret as separate factors and could, in fact, simply be alternative manifestations of a single viewpoint (Watts & Stenner, 2012). In Figure 4.1 below, the y-axis represents the Eigen Values, and the x-axis represents the factors.

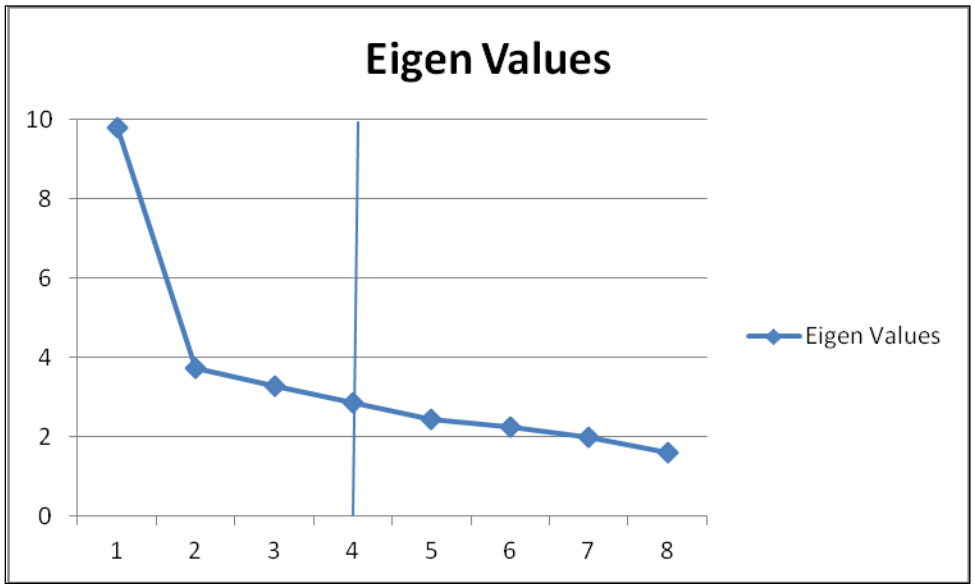

Figure 4.1: Scree Plot of Eigen Values

Hence, Factors 5 through 8 were excluded from the solution because their Eigen Values were very similar. Using a four-factor analysis resulted in 4 confounded sorts and 1 no-load or non-significant sort. Table 4.2 below details the information used to determine the factor rotation.

Table 4.2: Information Used to Determine the Factor Rotation

Factor Rotation Solution	Eigen Value Included	Explained Variance	Number of Participants Loaded	Correlation Among Factors	Reasoning
5 Factors	2.5-9.8	52%	30 out of 42	All below .33	Rejected because it does not include 12 of the 42 participants.
4 Factors	2.9-9.8	47%	37 out of 42	All below .44	Not Rejected because it includes the most number of participants and has the highest correlation value among factors.
3 Factors	3.2-9.8	40%	37 out of 42	All below .38	Rejected because it has a lower explained variance and a lower correlation value among factors.

Additionally, the correlations between factor scores were also reviewed, in order to determine how closely the factors related to one another. The data suggested that four factors were related to one another, and much of the explained variance could be accounted for by using these four factors. Since Factor 1 and Factor 4 had the highest correlation value, and to ensure both were included, the researcher therefore decided to use a four-factor rotation. Table 4.3 below shows how closely each factor is related to the other three factors.

Table 4.3: Correlations between Factor Scores

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1.000	0.3398	0.2790	.04411
Factor 2	0.3398	1.000	0.3345	0.2729
Factor 3	0.2790	0.3345	1.000	0.2886
Factor 4	0.4411	0.2729	0.2886	1.000

Humphrey's Rule

Humphrey's Rule is another test that is used to check the validity and strength of a factor. Brown (1980) noted that "a factor is significant if the cross-product of its two highest loadings exceeds twice the standard error" (p. 230). However, Watts and Stenner (2012) interpreted Humphrey's Rule a bit differently, writing, "the same rule can, however, be applied less strictly by insisting that the cross-products simply exceed the standard error" (p. 108). Table 4.4 below shows that all four factors were significant and worthy of further analysis using the interpretation of Humphrey's Rule put forth by Watts and Stenner.

Table 4.4: Humphrey's Rule

	Factor 1	Factor 2	Factor 3	Factor 4
Cross Product of Two Highest Loadings	.453	.337	.370	.270
Standard Error	.331	.331	.331	.331
Difference	.122	.006	.004	-.06
Standard Error x2	.662	.662	.662	.662

(Note. Standard Error <.05)

Factor Descriptions

Factor Loadings

To fully examine the data, a four-factor Varimax rotation, allowing each Q-Sort to be loaded on a factor with a correlation score, was run in order to highlight and separate the four factors as they emerged. The correlation score is a simple measure of association between the variables of the participants' Q-Sorts of their statements, a measure of the agreement between all the individual Q-Sorts. A large positive correlation (closer to +1.0) indicates that persons who scored highly in relation to Variable 1 tended to do similarly in relation to Variable 2. Conversely, a large negative correlation (closer to -1.0) suggests that high scores relative to Variable 1 are typically associated with low scores on Variable 2. The correlation score is an estimate of position and viewpoint that most closely approximates a perfect Q-Sort for that factor (Militello & Benham, 2010; Militello & Janson, 2007).

Generally, there are three conventional significance levels used in inferential statistics: the .05 level, the .01 level, and the .001 level. In order for a factor loading to be significant in the current study, at a $p<.01$ level the factor score had to exceed 2.58 (SE) = 2.58 x 5.916 = .4360. In order for a factor loading to be significant at a $p<.05$ level, it had to exceed 1.96 (SE) = 1.96 x 5.8309 = .3312. Harris (1998) remarked, "Most of the time, the .05 α-level is considered to be the minimum level necessary for significance" (p. 277); thus, the .05 level was used in the current study, and the factors chosen were significant at the level of $p<.05$. The Q-Sorts had to load above the .331 threshold to be considered significant factor-loading and, generally, with a few exceptions, there was a significantly higher loading on at least one of the four factors by each participant in the study. Table 4.5 below details how

each participant (P-sample) loaded on the four factors and shows a correlation score obtained by the calculation of all correlations relative to the variables (statements sorted) in the data matrix for each participant.

Table 4.5: Factor Matrix Using Participants' Q-Sorts (Loadings)

Participants	Factor 1	Factor 2	Factor 3	Factor 4
1	0.0154	0.4636	0.2442	0.4869
2	0.0842	-0.0741	0.5735*	0.0539
3	0.0575	-0.3082	0.6061*	-0.2656
4	0.3315	0.0016	0.0795	0.3286
5	0.0996	0.4324	0.5679*	0.1769
6	0.4162	0.2034	0.5365*	0.1985
7	0.3723	0.6607*	-0.0829	0.0102
8	0.4703*	0.1930	-0.0631	0.0349
9	0.5226*	0.1069	0.3273	0.3152
10	0.2406	0.6454*	-0.1199	0.0839
11	0.5959*	0.3694	-0.0306	0.2497
12	0.2230	0.3844*	0.2113	-0.1967
13	0.5147*	0.3270	0.2414	0.1731
14	0.0862	-0.1889	0.0854	0.5060*
15	0.6539*	0.1098	0.2163	0.3273
16	-0.3530	0.5698*	0.0019	-0.1350
17	0.0147	-0.0056	0.2825	0.3945*
18	0.0880	0.4510	0.0389	0.5455*
19	-0.0403	0.6724*	0.2312	0.3180
20	0.4661	-0.0351	0.0399	0.5479*
21	0.6071*	-0.1202	0.2733	-0.1431
22	0.6232*	0.2394	0.1165	-0.2559
23	0.1763	0.2797	0.5678*	0.2123
24	0.6071*	-0.0074	0.2275	0.0131
25	0.0875	0.1573	0.3013	0.4479*
26	0.2123	0.4337	-0.0653	0.5023*
27	-0.0969	0.1618	0.5757*	0.2770
28	0.5631*	0.0915	0.0764	-0.0761
29	0.0385	0.0726	0.5814*	0.0193
30	-0.0023	-0.0414	0.8189*	0.0623
31	-0.0882	0.6000*	0.1809	-0.5136
32	0.6727*	-0.0477	-0.1310	0.2656
33	0.4052	0.6458*	0.2470	-0.1437
34	0.1752	0.2768	0.4784*	0.1601
35	0.3521	0.2569	0.3246	0.1544
36	0.6399*	0.4205	-0.1519	0.0825
37	0.6485*	-0.1123	-0.0490	0.3059
38	0.5094*	-0.0012	0.4425	-0.3482
39	0.4239	0.4231	0.0417	0.3137
40	0.0368	0.6851*	0.5413	0.0731
41	0.2986	0.3169	0.2553	0.1187
42	-0.0008	0.0574	0.0672	0.5225*
Exp. Variance	15%	12%	11%	9%

** for .05 significance 1/√35 * 1.96 = .331 at or above sig. p<.05*

The rotated factors represented 47% of the variance, with Factor 1 representing 15%, Factor 2 representing 12%, Factor 3 representing 11%, and Factor 4 representing 9%. On all factors, participants loaded significantly at the $p<.05$ level. On Factor 1, 13 participants loaded significantly; on Factor 2, 8 participants loaded significantly; on Factor 3, 9 participants loaded significantly; and on Factor 4, 7 participants loaded significantly. Thirty-seven participants loaded significantly on one of the four factors, a total of 88% of the participants in the current study. However, as indicated in Table 4.6, there were five participants who did not load significantly on a single factor, resulting in four confounded sorts and one no-load sort.

Four participants, including Participant 1, 4, 35, and 39, had confounded sorts that load similarly on more than one factor. Using Participant 39 as a specific example, Factor 1 and Factor 2 had similar defining sort values of .4239 and .4231, respectively; however, neither was more significant than the other, thereby making it a confounding sort. The no-load sort of Participant 41 did not load significantly on any factor. Factors 1, 2, 3, and 4 had values of .2968, .3169, .2553, and .1187, respectively. In this case, there was no similar defining sort value, and neither value was significant (above .331) on any one factor. Therefore, the researcher decided not to use Participants 1, 4, 35, 39, or 41 in the final analysis.

Factor Loading Meaning

The foundational idea of Q-Methodology is based on the production of item configurations or sorts. In Q-Methodology, participants are asked to consider the items or statements of a Q -Set relative to one another, and to create a single Q-Sort on that basis. The

Q-Sort "captures the viewpoint of the participant as a *whole*. Thereafter, the analysis proceeds via the intercorrelation of whole Q-Sorts – complete configurations of items – and factors are located and extracted on that basis" (Watts & Stenner, 2012, p. 141).

As previously outlined in Table 4.2, a four-factor solution was used in the current study, because it included the most number of participants and had the highest correlation value among factors. Table 4.6 specifies where each statement fell or correlated with regard to each factor. The highest scoring statements regarding effective professional development in Factor 1 contained language like: reflect the individual needs; offers individual choice; seeks input from teachers; and provides learning opportunities that relate to individual teacher needs. This group sorted statements 11, 13, 14, 25, and 34 on the +4 and +3 (or "Most Prefer") side of the distribution grid. As indicated in Table 4.6, which highlights where each statement fell or correlated with regard to each of the factors, participants in this group ranked statements about individual teacher needs high.

In Factor 2, the highest scoring statements regarding effective professional development contained language like: improving teaching, learning, and the overall academic performance of students; training the teacher to engage and prepare students; student learning; helping teachers to understand the knowledge and skills students are expected to know and demonstrate; learning outcomes of the teacher; how the teacher can best provide for the learning of students; culture of continuous improvement; and learning about best practices is ongoing and never finished. This group sorted statements 6, 8, 18, 22, and 24 on the +4 and +3 (or "Most Prefer") side of the distribution grid. Table 4.6 shows that participants in this group ranked statements about student and teacher learning high.

The highest scoring statements in Factor 3 regarding effective professional development contained language like: school leader seeks input from teachers before making decisions; training sessions allow teachers to share best practices; requires teachers to collaborate; and provides time for teachers to collaborate. This group sorted statements 1, 4, 6, 9, and 14 on the +4 and +3 (or "Most Prefer") side of the distribution grid. Table 4.6 shows that participants in this group ranked statements about collaboration high.

In Factor 4, the highest scoring statements regarding effective professional development contained language like: structure that provides time to collaborate; seeks input; aligned to the school's mission, vision, and values; provides opportunities for teachers; and creates and supports an environment of risk-taking. This group sorted statements 4, 5, 14, 22 and 30 on the +4 and +3 (or "Most Prefer") side of the distribution grid. Participants in this group ranked statements about supportive structures and environments high, as shown in Table 4.6.

The goal of Q-Methodology is to provide the best possible estimate of the relevant factors and offer an idea of what a 100% or perfectly loading Q-Sort might actually look like, as demonstrated in each of the Model Sort Tables that follow. In the current study, 35 statements and 41 Q-Sorts were effectively reduced to four key points or factors, each of which can be represented by its own unique Q-Sort.

It should be noted that there were individual participants in the current study who loaded significantly on one factor but could very easily fall into another factor. For example, as previously shown in Table 4.5, Participant 6 had a factor-loading score of .5365 on Factor 3 and a factor-loading score of .4162 on Factor 1. Significantly, both factor-loading scores

were significant in being above the .331 cut-off. It would be expected, then, that Participant 6 would have similar Q-Sorts and ideas about professional development as other participants in both Factor 3 and Factor 1, but not similar to participants who fell under Factors 2 and 4. Notably, though, individual statements can be highly valued by participants in more than one factor. For example, as shown above in Table 4.6, Statement 14 was considered significant or most preferred by participants falling under Factors 1, 3, and 4.

Table 4.6 delineates where each of the statements fell under each factor with regard to its Model Q-Sort. An example can be seen in Statement 11, which fell high (+4) on Factor 1, suggesting that participants in this group generally rate or believe that effective professional development provides learning opportunities that reflect the individual needs of teachers. As shown in Figure 4.2, Statement 11 ranked as a +4 in the Factor 1 Model Q-Sort. On the other hand, Statement 35 fell low (-4) on Factor 1, revealing that participants in this group do not generally rate or believe that effective professional development within a school requires the attendance of school administration at the trainings and workshops. Likewise, an examination of Figure 4.2 reveals that Statement 35 ranked as -4 in the Factor 1 Model Q-Sort.

Table 4.6 below provides all of the Q-Sort statements and indicates where each of the four factor groups sorted the statements on the continuum of “Least Prefer” (-4) to “Most Prefer” (+4).

Table 4.6: Statements and Factor Placements

Statement	Factor 1	Factor 2	Factor 3	Factor 4
1. Effective PD requires teachers to collaborate.	0	2	3	0
2. Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	0	1	2	-1
3. Effective PD uses peer coaching.	-2	-1	0	-2
4. Effective PD requires structures to be put in place that provides time for teachers to collaborate.	2	0	3	4
5. Effective PD is aligned to the school's mission, vision, and values.	0	1	-2	3
6. Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	2	3	3	1
7. Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	-2	-1	0	-4
8. Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	1	3	2	2
9. Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	-2	-1	4	0
10. Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	1	-3	-4	-3
11. Effective PD provides learning opportunities that reflect the individual needs of teachers.	4	0	1	0
12. Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do "one type" of teaching.	1	2	1	-1
13. Effective PD offers both individual and school-wide choice with regard to topics that are offered.	4	0	0	2

**PD= Professional Development*

Table 4.6 (continued)

Statement	Factor 1	Factor 2	Factor 3	Factor 4
14. In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	3	0	4	4
15. Effective PD aligns with the assumptions and beliefs of staff members.	-2	-4	-1	-1
16. Effective PD promotes and tests new ideas that may seem difficult or threatening.	-1	-4	0	-4
17. Effective PD is long-term, sustained, and content focused.	-1	0	-2	-3
18. Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	2	4	-1	1
19. Effective PD uses multiple data sources to measure teacher and student performance and learning.	-1	-1	-3	2
20. Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	0	-1	-3	0
21. Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	0	2	-3	1
22. Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.	1	3	2	3
23. Effective PD fosters academic learning of both the teacher and student.	1	1	0	1
24. Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	-1	4	-1	-2
25. Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	3	2	0	-1

**PD= Professional Development*

Table 4.6 (continued)

Statements	Factor 1	Factor 2	Factor 3	Factor 4
26. Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	-3	-2	-4	2
27. Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	-3	1	2	1
28. Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum).	0	0	1	0
29. Effective PD requires a principal that guides instructional change.	-4	-3	-2	0
30. Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	2	-3	1	3
31. In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	-1	-2	-2	-2
32. Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	-3	1	1	-3
33. Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks.	0	-2	-1	-1
34. Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	3	0	0	0
35. Effective PD within a school requires the attendance of school administration at the trainings and workshops.	-4	-2	-1	-2

**PD= Professional Development*

Section Summary

To summarize, the data collection process for the current study had a two-part design: data from the Q-Sorts was collected and analyzed using the PQ Method software, and then post-sort surveys and interviews from individuals and focus groups were used to gather qualitative data to supplement the information about the Q-Sorts. In naming the factors, three pieces of information or data informed the decision-making process: the statistical analysis of the Q-Sorts; the post-survey data from the Q-Sorts; and, finally, the focus group interview data collected after the Q-Sort. In particular, the qualitative survey and interview data allowed the researcher to better understand what the four factor groups believed about effective professional development and how those beliefs impacted the participants' willingness to make changes to their teaching practices.

The current study investigated the research question, "What perceptions do teachers have about effective professional development that encourages them to reflect upon and make changes to their teaching practices?" Four factor groups emerged from prior statistical analysis, and the researcher named the factors based on both quantitative and qualitative data collected during the Q-Sort session and post-sort interviews. The four factor groups are discussed in the next sections.

Factor 1: Individual Teacher Needs

A total of 13 participants loaded significantly on Factor 1, individual teacher needs, accounting for 35% of the participants and 15% of the variance. The findings suggest that a significant group of participants shared the same beliefs regarding effective elements of

professional development. Eleven of the participants were females, and one was a male, and they had teaching experience ranging from 0 to 15 or more years; four teachers had earned a Bachelor's Degree, eight had earned a Master's Degree, and one had earned a Doctorate degree. Table 4.7 below provides the sub-group characteristics of the participants who loaded significantly on Factor 1.

Table 4.7: Participants Loading Significantly on Factor 1

Participant Number	Years Teaching	Highest Degree Earned: Bachelor (B), Master (M), or Doctorate (D)	Male (M) or Female (F)
8	10-14	B	F
9	5-9	M	F
11	10-14	B	F
13	0-4	B	F
15	10-14	M	M
21	10-14	D	F
22	10-14	M	F
24	10-14	M	F
28	0-4	M	M
32	10-14	M	F
36	15+	M	F
37	10-14	M	F
38	15+	B	F

In statistical analysis, the z-score indicates how far and in what direction a statement deviates from its distribution's mean. Table 4.8 below details the sequence of statement cards and their z-scores for Factor 1 participants; as shown, the rankings of statements for Factor 1 participants move from the most preferred statement (z-score of 1.974) to the least preferred statement (z-score of -1.913).

Table 4.8: Factor 1 – Normalized Factor Scores

Card	Statement	Z-Score
13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.	1.974
11	Effective PD provides learning opportunities that reflect the individual needs of teachers.	1.960
34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	1.571
14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	1.477
25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	1.092
4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.	1.075
6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	0.889
18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	0.830
30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	0.751
23	Effective PD fosters academic learning of both the teacher and student.	0.718
8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	0.700
22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.	0.660
10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	0.617
12	Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do “one type” of teaching.	0.523
21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	0.081
5	Effective PD is aligned to the school’s mission, vision, and values.	-0.082

**PD= Professional Development*

Table 4.8 (continued)

Card	Statement	Z-Score
2	Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	-0.108
1	Effective PD requires teachers to collaborate.	-0.330
20	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	-0.339
28	Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum).	-0.342
33	Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks.	-0.357
24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	-0.415
31	In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	-0.533
17	Effective PD is long-term, sustained, and content focused.	-0.598
19	Effective PD uses multiple data sources to measure teacher and student performance and learning.	-0.741
16	Effective PD promotes and tests new ideas that may seem difficult or threatening.	-0.786
15	Effective PD aligns with the assumptions and beliefs of staff members.	-0.833
9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	-0.898
7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	-0.932
3	Effective PD uses peer coaching.	-1.001
32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	-1.026
27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	-1.073
26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	-1.262

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Table 4.8 (continued)

Card	Statement	Z-Score
29	Effective PD requires a principal that guides instructional change.	-1.351
35	Effective PD within a school requires the attendance of school administration at the trainings and workshops.	-1.913

**PD= Professional Development*

Figure 4.2 is a model sort, or factor array, for Factor 1, representing the participants who loaded significantly on Factor 1 and what 35% of the participants perceive to be effective elements of professional development. Watts and Stenner (2012) made an apt observation about model sorts:

> [A model sort is] in fact, no more or less than a single Q-Sort configured to represent the viewpoint of a particular factor. The model sort conforms to the same distribution used in the original data collection and it is constructed by reference to the size and ultimately the rank order of the z scores. (p. 140).

Reviewing the model sort in Figure 4.2 indicates that the items with the two highest z scores (Statements 11 and 13), do, indeed, correspond with the distribution of the original data as shown in Table 4.8. As Watts and Stenner (2012) noted, "The main goal of the factor array is to provide a best possible estimate of the relevant factor and, in so doing, to give a sense of what its 100% or perfectly loading Q-Sort might actually look like" (p. 141). Thus, a model sort or factor array captures the viewpoint as a whole based on all participants' Q-Sorts, and helps to form the basis for later interpretations and naming of factors.

Least Prefer				No Preference				Most Prefer
-4	-3	-2	-1	0	+1	+2	+3	+4
29	26	3	16	1	8	4	14	11
35	27	7	17	2	10	6	25	13
	32	9	19	5	12	18	34	
		15	24	20	22	30		
			31	21	23			
				28				
				33				

Figure 4.2: Factor 1 Model Sort

Table 4.9 below indicates the highest and lowest placed statement cards in the study. Notably, statements placed at the boundaries of the sorting grid are most representative of Factor 1 and those participants who loaded significantly on the factor. These extremes are important markers for Factor 1, individual teacher needs, as representative of teachers and their perceptions about professional development.

Table 4.9: Factor 1 - High-Positive and High-Negative Statements

Score	Card	Statement
+4	11	Effective PD provides learning opportunities that reflect the individual needs of teachers.
+4	13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.
+3	14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.
+3	25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.
+3	34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.
-3	26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.
-3	27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.
-3	32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.
-4	29	Effective PD requires a principal that guides instructional change.
-4	35	Effective PD within a school requires the attendance of school administration at the trainings and workshops.

**PD= Professional Development*

Of the teacher participants in the current study, 35% loaded significantly on Factor 1, "Individual Teacher Needs." The four highest-scoring statements for the group, using the z-score values, were found to contain language like: reflect the individual needs; offers individual choice; seeks input from teachers; and provide learning opportunities that relate to individual teacher needs. This group sorted Statements 11, 13, 14, 25, and 34 on the +4 and +3, or "Most Prefer," side of the distribution grid.

The research in Chapter 2's literature review clearly identified, as a best practice, that professional development should involve the learners (i.e., teachers) in the planning of learning opportunities and processes to be used with regard to teacher training. Hirsch (2005)

said that staff development should align "most clearly with the assumptions and beliefs of staff members" (p. 39), and Guskey (2000) concurred, claiming that the best professional development occurs when "administration, faculty, and other staff members of a school work together to plan professional development activities" (p. 170) that meet the needs of teachers.

Indeed, findings from the current study correspond with these researchers' statements regarding the importance of meeting teachers' needs in planning professional development. For example, Participant 37 placed Statements 11 and 13 in the +4 column. She stated that "individual needs (of teachers) need to be met" and claimed that "a one-size-fits-all" type of professional development was not appropriate. In addition, she expressed that it was important to involve teachers in deciding what kind of professional development they need and want, as schools should strive to create an environment that encourages individual growth. In her written comments, Participant 37 also added that in order for professional development to influence her to make changes in her teaching, it must be stimulating and provide pedagogical examples specific to her content.

Addressing the issue of teachers having choice in the kind of professional development they complete, Hawley and Valli (1999) noted that good professional development "involves learners (such as teachers) in the identification of what they need to learn" (p. 139). Gimbel et al. (2011) agreed, maintaining that the principal must seek input from teachers about what they want and need to learn before making decisions with regard to professional development. Several participants in the study addressed the issue of teacher choice as important in professional development. For example, during the post-sort interview Participant 27 stated:

> We are all kind of working toward the same goals. I feel like where I am in my teaching is different than a second- or third-year teacher, in that we are put in a room and [they're] saying you have to learn this, when maybe it is not relevant to [your] subject. Or, [it] is something I already do, or is just not something I feel I need to work on when two hours would be better spent learning something that is a little more applicable to what I would be interested in.

Likewise, Participant 36 simply indicated that choice was important when selecting professional development. Also speaking to the matter of choice, Participant 24 placed Statements 10 and 14 in the +4 column and remarked on the importance of being able to choose professional development that provides what she actually needs; she wrote, "Teachers need more input into professional development choices. Professional development seems to be the solution to today's problems? Wrong." Participant 13 agreed with the importance of choice, ranking Statement 11 as his most preferred and simply stating, "Professional development is for teachers, not administrators." Similarly, Participant 15 ranked Statement 14 as most preferred, and both indicated that professional development should be for and about teachers. Participant15 wrote, "I believe professional development can cover almost any topic teachers see as an issue/concern," and he added that the "principal and assistant principal should enable professional development, not dictate [it]." Furthermore, he believed the administration in a school should focus professional development on teachers and what teachers need, not what the administration wants or expects.

Some participants commented on the importance of teacher choice as it pertains to selecting content-specific professional development. As previously noted, Participant 37

claimed that she is only inclined to make changes in her teaching when the professional development is specific to her content. Participant 28 addressed the importance of content-specific professional development in her strong assertion that professional development is "usually a waste of time because it doesn't relate to a specific subject." Participant 32 agreed, and identified the critical piece influencing her to modify her pedagogy as "something that matches my content and will engage my students to learn a skill," adding, "I am surprised that, although I am soon to become an administrator, I believe teachers should be given choices to continue their learning." Similarly, Participant 21 categorized Statement 11 as most preferred, commenting, "I don't think that the administration can effectively make decisions about or guide the professional development of content-specific teaching. I firmly believe that professional development should be teacher led and content-specific." Findings from the current study, then, suggested that content-specific professional development is important to teachers.

Other participants in the group addressed the importance of meeting the needs of teachers as it specifically relates to the proponents or presenters of the professional development. For example, Participant 9 said that it was important to her who presented the professional development, writing, "I am more likely to use it in my classroom if I hear from a teacher who is currently using it, rather than my principal telling me to do it." Also, Participant 8 simply said that "teachers are in the classroom" and so, logically, professional development should be "teacher-led."

Several teachers in the group indicated that they did not believe a constant focus on data-driven instruction was a necessary component of professional development. Participant 22 stated:

> I think most teachers are constantly reflecting on and evaluating the effectiveness of their instruction; I know I am. To me, the purpose of staff development is not looking at data, but finding new and innovative ways to work with students.

Participant 22 added a noteworthy comment in the post-sort interview:

> Effective professional development offers both individual and school-wide choice with regard to topics that are offered. I think, for social studies, one of the best things [is] when we have the money, when we can go to the social studies conference, and you get to pick the things that you feel are needed in your classroom the most. I have been in situations…where we have had that opportunity at the school level, there were several different seminars going on at the school, and we could pick ones that we felt were most applicable to our subject area. It is about choice. It is about what you feel is needed in your classroom. A lot of the times, our professional development, it seems to be whatever is the newest, hottest topic of the time, and 'let's just jump on that bandwagon' even when there are some tried and true practices that work.

Here, the participant spoke to all the elements of choice as part of meeting individual teachers' needs in professional development.

It should be noted that, while completing the Q-Sort, participants in the study were asked to identify the statement that was the most difficult for them to place. Participant 32

claimed that Statement 28 was difficult to place on the distribution grid; she thought it was important for the principal to be familiar with learning but, as she said, "It would be great, but mostly impossible." Participant 13 also had difficulty placing statements that were administration-focused, and Participant 8 felt similarly about the involvement of school administration, writing, "The admin[istration] should be strongly included, although teachers should guide and choose professional development." Additionally, Participant 28 believed that professional development did not always have to be connected to a more global vision for the school. Participant 24 had difficulty placing Statement 1, saying that "effective teaching took place years before professional development was in place." She also remarked that there were "too many top-down mandates" which she called "a 1950s hierarchical model that even private sector corporations have left." Like others that loaded significantly on Factor 1, she asserted that "providing professional development that [she] actually need[s]" is what influences her most to make changes in her teaching practices.

To summarize, participants in the Factor 1 group did not believe effective professional development requires a principal that guides instructional change or the attendance of school administration at the trainings and workshops. Instead, Factor 1 group participants seemed to desire and seek professional development that meets the individual needs of teachers, their classes and specific subjects. Furthermore, findings from the study suggested that teachers do not want to sit through general "one-size-fits-all" training sessions but, rather, they want professional development that specifically addresses their subject areas and provides tangible examples that they can immediately take back and use in their classrooms.

Factor 2: Student and Teacher Learning

A total of eight participants loaded significantly on Factor 2, student and teacher learning, which accounts for 22% of the participants and 12% of the variance and suggests that a small group of study participants shared the same beliefs regarding effective elements of professional development. All of the participants who loaded significantly on Factor 2 were female classroom teachers, with experience ranging from 0 to 15 or more years of teaching. Four teachers had earned a Bachelor's Degree, and four had earned a Master's Degree. Table 4.10 below provides the sub-group characteristics of the participants who loaded significantly on Factor 2.

Table 4.10: Participants Loading Significantly on Factor 2

Participant	Years Teaching	Highest Degree Earned: Bachelor (B), Master (M), or Doctorate (D)	Male (M) or Female (F)
7	15+	M	F
10	15+	B	F
12	0-4	B	F
16	0-4	B	F
19	10-14	M	F
31	10-14	B	F
33	5-9	M	F
40	15+	M	F

Table 4.11 below details the sequence of statement cards for Factor 2 participants, including a z-score that indicates how far and in what direction each statement deviated from its distribution's mean. The rankings of statements for Factor 2 participants ranged from the most preferred (z-score of 2.402) to the least preferred (z-score of -1.933).

Table 4.11: Factor 2 – Normalized Factor Scores

Card	Statement	Z-Score
24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	2.402
18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	1.886
8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	1.675
22	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	1.583
6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	1.245
1	Effective PD requires teachers to collaborate.	1.198
25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	1.033
21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	0.801
12	Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do “one type” of teaching.	0.670
23	Effective PD fosters academic learning of both the teacher and student.	0.319
5	Effective PD is aligned to the school’s mission, vision, and values.	0.300
2	Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	0.213
32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	0.182
27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	0.044
4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.	0.020
11	Effective PD provides learning opportunities that reflect the individual needs of teachers.	-0.061
17	Effective PD is long-term, sustained, and content focused.	-0.064

**PD= Professional Development*

Table 4.11 (continued)

Card	Statement	Z-Score
13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.	-0.211
14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	-0.240
28	Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum).	-0.310
34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	-0.364
9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	-0.384
3	Effective PD uses peer coaching.	-0.427
20	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	-0.456
19	Effective PD uses multiple data sources to measure teacher and student performance and learning.	-0.494
7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	-0.576
33	Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks	-0.605
31	In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	-0.635
35	Effective PD within a school requires the attendance of school administration at the trainings and workshops.	-0.771
26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	-0.962
30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	-1.179
10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	-1.222
29	Effective PD requires a principal that guides instructional change.	-1.312

**PD= Professional Development*

Table 4.11 (continued)

Card	Statement	Z-Score
15	Effective PD aligns with the assumptions and beliefs of staff members.	-1.365
16	Effective PD promotes and tests new ideas that may seem difficult or threatening.	-1.933

**PD= Professional Development*

Figure 4.3 is a model sort for the participants who loaded significantly on Factor 2 and represents what 22% of participants perceive to be effective elements of professional development.

Least Prefer				No Preference				Most Prefer
-4	-3	-2	-1	0	+1	+2	+3	+4
15	10	26	3	4	2	1	6	18
16	29	31	7	11	5	12	8	24
	30	33	9	13	23	21	22	
		35	19	14	27	25		
			20	17	32			
				28				
				34				

Figure 4.3: Factor 2 Model Sort

Below, Table 4.12 shows the highest and lowest placed statement cards for the Factor 2 group. Statements placed at the boundaries of the sorting grid are most representative of Factor 2 and those participants who loaded significantly. These extremes are important

markers for Factor 2, representative of teachers and their perceptions about professional development as it pertains to student and teacher learning.

Table 4.12: Factor 2 – High-Positive and High-Negative Statements

Score	Card	Statement
+4	18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.
+4	24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.
+3	6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.
+3	8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.
+3	22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.
-3	10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.
-3	29	Effective PD requires a principal that guides instructional change.
-3	30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.
-4	15	Effective PD aligns with the assumptions and beliefs of staff members.
-4	16	Effective PD promotes and tests new ideas that may seem difficult or threatening.

**PD= Professional Development*

Of the teacher participants in the current study, 22% loaded significantly on Factor 2, "Student and Teacher Learning." Using the z-score values, the four highest-scoring statements for the group contained language like: improving teaching, learning, and the overall academic performance of students; training the teacher to engage and prepare students; student learning; helping teachers to understand the knowledge and skills students

are expected to know and demonstrate; learning outcomes of the teacher; how the teacher can best provide for the learning of students; culture of continuous improvement; and learning about best practices is ongoing and never finished. The Factor 2 group sorted Statements 18, 24, 6, 8, and 22 on the +4 and +3 or "Most Prefer" side of the distribution grid.

Thompson and Zeuli (1999) wrote that professional development "primes the pump" of transformative learning for both teachers and students, suggesting that professional development is particularly important for furthering student and teacher learning. Echoing these researchers' claims, Participant 7 listed Statement 23, "Effective professional development fosters academic learning of both the teacher and student," and Statement 24, "Effective professional development is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school," as her most preferred. From the Q-Sort, she also indicated important themes in her view that professional development should be student-oriented, teacher-oriented, and content-oriented. Additionally, Participant 7 felt that if professional development was the centerpiece for improving in a school, then it was the best way to facilitate student learning and achievement. When asked to respond to what influences her to make changes in her teaching, she expressed her view on the importance of student learning by answering, "Concrete results that lead to student achievement." Findings from participants in the current study indicated, then, that increased student learning should be a vital element of professional development.

In addition to student learning, teachers in the Factor 2 group generally leaned toward descriptors that suggested the importance of teacher learning as part of professional development, believing their education should be addressed along with that of their students.

Howey (1985) agreed, remarking, “Staff development designers should take into account the developmental differences and experience of teachers” (p. 60). Blase and Blase (2000) supported the same idea, contending that good professional development should encourage teachers to “redesign instructional programs to support a multitude of diverse approaches to teaching and learning" (p. 136). In other words, teachers should not be required to do one type of learning, nor should they be required to do one type of teaching. Likewise, Wagner (2008) suggested the same idea in claiming that professional development should focus on what motivates teachers and students to learn.

The responses of the participants in the Factor 2 group reflected these scholars’ notions about student and teacher learning as a vital piece of professional development. Hawley and Valli (1999) maintained that professional development, when integrated with a comprehensive change process, can effectively deal with impediments to student learning and facilitate student academic growth. For example, Participant 10 felt that Statement 24 and 8 were the easiest to place because they focused on student learning, as she herself seeks out professional development that “teaches us how to involve students more effectively.” She added to this in her comments about effective professional development in the post-sort interview:

> [It] gives me alternatives that I can use with the diverse learners. It teaches me how to teach as many kids as possible in the most effective manner. Good professional development teaches me how to reach as many kids as possible and not leave anybody, any interest out, any talents out. I have had some professional development classes that have really taught me how to get the kids to read for information

specifics, and I changed [my classroom practices] because they gave me some skills that I didn't have to get kids to read and use language.

Responding along similar lines, Participant 12 placed Statement 12 as her most preferred; it stated, "Effective professional development encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do 'one type' of teaching."

Addressing the importance of student learning as well as teacher learning, Darling-Hammond and Sykes (1999) found that student academic success as a result of professional development depended on the substantial and direct measure of teacher learning that took place during the professional development. They maintained that teacher learning must take place before student learning can occur. Participant 12 made a similar connection between teacher and student learning, suggesting that teachers must find ways to meet the needs of their students. Specifically, she indicated that good professional development "strengthens teacher knowledge on how to teach their content most effectively," adding that such professional development "would have the most beneficial impact on student learning and engagement." Hence, it was apparent that Participant 12 sought professional development that focuses on diverse learners, student engagement, and content knowledge, while also allowing for teacher learning, reflection, and collaboration, which could have a high, positive impact on the teacher.

Like Participant 12, Participant 31 also noted the importance of teacher reflection in professional development, as evidenced by her sorting of Statements 24 and 18 as her most preferred; both statements emphasized teacher and student learning in the process of school

improvement. In concurrence, Participant 33 wrote, "Teacher learning and student learning go hand in hand. Just as we want students to collaborate to obtain 21st century skills – we should do the same." She also suggested that it was important for teachers to work together to "decompress" after professional development, in order to figure out how to best use new strategies and help their students succeed. Indeed, Showers (1990) found that teachers, like students, were excellent learners when they understood the theory of a curriculum or strategy, could see multiple demonstrations of the new material or practices, and had opportunities to practice in the training/learning setting, and participants in the Factor 2 group could not underestimate the importance of teacher learning.

When asked to identify statements that were the most difficult for to place while completing the Q-Sort, participants offered several responses. Statement 5, aligning professional development to the school's mission, vision, and values, was difficult for Participant 10, who noted that "it depends on the mission, [and] vision." She also said that administrators did not necessarily need to be present for professional development, but that they should support teachers. Participant 7 indicated that she had trouble sorting statements that had to do with the importance of the principal's role.

Participants in the Factor 2 group did not believe effective professional development aligns with the assumptions and beliefs of staff members, nor did they feel that it promotes and tests new ideas that may seem difficult or threatening. Instead, Factor 2 group participants value student and teacher learning, believing in continuous improvement for both themselves and their students. Teachers in this group wanted professional development that challenges them with new and innovative ideas so that they may, in turn, challenge the

learning of their students. Researchers have agreed, contending that professional development is the centerpiece for promoting academic change within schools, and noting its ability to have an effective and significant impact on student learning when there is substantial learning by the teacher (Darling-Hammond & Sykes, 1999).

Factor 3: Collaboration

A total of nine participants loaded significantly on Factor 3, collaboration, accounting for 24% of the participants and 11% of the variance, and suggesting that a small group of participants shared the same beliefs regarding effective elements of professional development. All the participants loading significantly on Factor 3 were classroom teachers, two males and two females, and their teaching experience ranged from 0 to 15 or more years. With regard to education, two teachers had earned a Bachelor's Degree and seven had earned a Master's Degree. Table 4.13 below provides the sub-group characteristics of the participants who loaded significantly on Factor 3.

Table 4.13: Participants Loading Significantly on Factor 3

Participant	Years Teaching	Highest Degree Earned: Bachelor (B), Master (M), or Doctorate (D)	Male (M) or Female (F)
2	10-14	B	F
3	5-9	M	M
5	15+	B	F
6	15+	M	F
23	15+	M	F
27	15+	M	F
29	5-9	M	M
30	5-9	M	F
34	0-4	M	F

Below, Table 4.14 details the sequence of statement cards for Factor 3 participants and includes a z-score indicating how far and in what direction each statement deviated from its distribution's mean. The rankings of statements for Factor 3 participants ranged from the most preferred (z-score of 2.021) to the least preferred (z-score of -2.214).

Table 4.14: Factor 3 – Normalized Factor Scores

Card	Statement	Z-Score
14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	2.021
9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	1.872
1	Effective PD requires teachers to collaborate.	1.584
6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	1.532
4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.	1.245
22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.	1.211
2	Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	0.817
8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	0.785
27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	0.620
11	Effective PD provides learning opportunities that reflect the individual needs of teachers.	0.561
30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	0.449
12	Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do "one type" of teaching.	0.425
28	Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum).	0.400

**PD= Professional Development*

Table 4.14 (continued)

Card	Statement	Z-Score
32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	0.348
7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	-0.025
16	Effective PD promotes and tests new ideas that may seem difficult or threatening.	-0.111
25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	-0.183
23	Effective PD fosters academic learning of both the teacher and student.	-0.302
3	Effective PD uses peer coaching.	-0.362
13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.	-0.368
34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	-0.3700
15	Effective PD aligns with the assumptions and beliefs of staff members.	-0.400
18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	-0.435
33	Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks.	-0.447
35	Effective PD within a school requires the attendance of school administration at the trainings and workshops.	-0.460
24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	0.466
17	Effective PD is long-term, sustained, and content focused.	-0.557
31	In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	-0.564
5	Effective PD is aligned to the school's mission, vision, and values.	-0.640
29	Effective PD requires a principal that guides instructional change.	-0.714
20	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	-0.832
21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	-0.987

**PD= Professional Development*

Table 4.14 (continued)

Card	Statement	Z-Score
19	Effective PD uses multiple data sources to measure teacher and student performance and learning.	-1.297
10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	-2.138
26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	-2.214

**PD= Professional Development*

Figure 4.4 is a model sort for the participants who loaded significantly on Factor 3, and represents what 24% of the participants perceive to be effective elements of professional development.

Least Prefer				No Preference				Most Prefer
-4	-3	-2	-1	0	+1	+2	+3	+4
10	19	5	15	3	11	2	1	9
26	20	17	18	7	12	8	4	14
	21	29	24	13	28	22	6	
		31	33	16	30	27		
			35	23	32			
				25				
				34				

Figure 4.4: Factor 3 Model Sort

Below, Table 4.15 lists the highest and lowest placed cards for the Factor 3 group. Statements placed at the boundaries of the sorting grid are most representative of Factor 3 and those participants who loaded significantly on Factor 3. These extremes are important markers for Factor 3, representative of teachers and their perceptions about professional development.

Table 4.15: Factor 3 – High Positive and High Negative Statements

Score	Card	Statement
+4	9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.
+4	14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.
+3	1	Effective PD requires teachers to collaborate.
+3	4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.
+3	6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.
-3	19	Effective PD uses multiple data sources to measure teacher and student performance and learning.
-3	20	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.
-3	21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.
-4	10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.
-4	26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.

**PD= Professional Development*

Of the teacher participants in the current study, 24% loaded significantly on Factor 3, "Collaboration." The group's four highest-scoring statements, using the z-score values, were found to contain language like: school leader seeks input from teachers before making

decisions; training sessions that allow teachers to share best practices; requires teachers to collaborate; and provides time for teachers to collaborate. The Factor 3 group sorted Statements 9, 14, 1, 4, and 6 on the +4 and +3, or "Most Prefer," side of the distribution grid.

All of the participants in the Factor 3 group addressed collaboration as an essential part of effective professional development. For example, Participant 2 suggested that it was important to her that principals support the teachers in order to get the most out of professional development, thereby also creating a good school environment. Similarly, Participant 5 placed Statements 4 and 1 in the +4 column and, from her card sort, collaboration emerged as an important theme.

In addition, some participants specifically addressed the importance of teachers having time to collaborate. Participant 5, for example, indicated that professional development requires time for collaboration, stating, "Time for teachers to collaborate has to be built into the day, and teachers have to be willing to collaborate." Additionally, the card sort for Participant 27 pointed to collaboration as an important theme for her, and she wrote, "Professional development needs reflection time and must be a part of the normal school culture," she said, "collaboration among teachers is effective and we rarely get that chance during the normal school day." As to what influences her to make changes to her teaching practices, Participant 27 cited "gaining insight by collaborating with my peers" and "encouragement and support from other teachers, and the school leadership."

Blase and Blase (2000) maintained that effective professional development incites teachers to become peer coaches and support each other in the learning process, and comments from the participants of the current study suggested that their contention was

correct. For instance, Participant 23 wrote, “Collaboration is very powerful,” and she also claimed that the aim of professional development must be to improve the learning of both teachers and students. “Professional development should include ample opportunities to collaborate and create concrete, practical products for the classroom,” she wrote, going on to indicate that collaboration helps teachers expand their understanding and knowledge, “discussion with other teachers continues to play the biggest role in my growth as a teacher.”

With regard to collaboration, researchers have noted that working together and learning from each other is a requisite piece of any successful professional development. Lieberman et al. (2000) wrote, “Collaboration is taught, learned, nurtured, and supported until it replaces working independently in schools with effective professional development that works” (p. 356). Indeed, in the current study, Participant 30 supported such a claim, writing that “sharing best practices with the entire school, not just between departments” was an important element of collaboration with regard to professional development.

During post-sort interviews, the idea of collaboration and teacher input was again evident. One example came from Participant 5, who said:

> Whereas they can get individual input from individual teachers, break you up separately, [and] say, “Alright, you guys wanted to work on this technology, you guys want to work on this type of development,” I feel like I sit with 120 teachers and I already kind of do the things that are there [to learn], so I do think it is more important. I want to learn, but sometimes I am not getting anything out of it, I am wasting a lot of time. When teachers show me things I can use in my classroom, I am more willing to make changes.

Participant 27 similarly suggested that working with other teachers to collaborate and reflect upon what they were doing in the classroom was important to her. She also noted getting excited when she has the chance to hear and learn about new ways of presenting information from other teachers:

> Learning is ongoing and never finished. I think we are constantly needing [*sic*] to reflect on what we have learned and how we can incorporate it into our classrooms and make it work for us. It is not necessarily what they gave us, but how can we change it or alter it to work for us. I think you constantly have to do that, because with different classes of kids, different things work. Collaboration among teachers is effective, and we rarely get that chance during the normal school day. Gaining insight by collaborating with my peers, encouragement, and support from other teachers and school leadership [leads me to make changes in my classroom practices].

During the Q-Sort, Participant 27 noted that, in addition to collaboration, support, encouragement from leadership, and risk-taking were things she also valued with regard to professional development.

When participants were asked to identify the statements most difficult to place while completing the Q-Sort, several were apparent. Specifically, Participant 31 had difficulty with statements that were focused on learning of individual teachers; he asserted that professional development was "not about the individual teachers, but about the whole." "Only as a team can we improve the school," he said, "you have to 'buy-in' and go forward."

A few participants had difficulty with statements that pertained to the role of the principal in professional development. Speaking to the equal importance of teachers,

Participant 3 wrote, “The principal guides instructional change, but it should be the teachers too.” Other participants were more uncertain about the principal’s role. For example, Participant 23 said that she “was not sure of their value in determining professional development needs and implementation.” Participant 34 similarly questioned whether the principal should always be the one to direct or lead professional development, stating, “I don’t think that administration have to be at all professional development sessions to be effective. Some of my most effective meetings involve only my professional learning team.”

Interestingly, the issue of data and its unreliability and misuse came up several times in the comments and written statements among the participants loading significantly on Factor 3. Participant 30 said, “Data is great, but training based on that alone is not comprehensive.” Participant 2 seemed to find data less important, writing, “Data means nothing. Data does not analyze students’ learning within the environment, and there is more to learning than a test.” With regard to the application of data, Participant 6 commented, “Data can be misused and create a poor environment to teach.” Finally, Participant 27 claimed that she had difficulty with statements about data, because “so often we rely on only one indicator/data source to determine what professional development we should focus on.”

Overall, findings revealed that participants in the Factor 3 group did not believe effective professional development includes support from outside the school, nor is it driven by the analyses of the differences between goals and standards for student learning and student performance. Instead, Factor 3 participants value collaboration as part of their professional development, so that they may exchange ideas and share tangible work examples.

Factor 4: Supportive Structures and Environment

A total of seven participants loaded significantly on Factor 4, support structures and environment, which accounted for 19% of the study participants and 9% of the variance, suggesting that a small group of participants shared the same beliefs regarding effective elements of professional development. All of the participants loading significantly on Factor 4 were classroom teachers, two male and five females, with teaching experience ranging from 0 to 15 or more years. One teacher had earned a Bachelor's Degree and six had earned a Master's Degree. Table 4.16 below provides the sub-group characteristics of the participants who loaded significantly on Factor 4.

Table 4.16: Participants Loading Significantly on Factor 4

Participant	Years Teaching	Highest Degree Earned: Bachelor (B), Master (M), or Doctorate (D)	Male (M) or Female (F)
14	0-4	M	F
17	15+	M	F
18	10-14	M	F
20	15+	M	F
25	5-9	M	M
26	10-14	M	F
42	10-14	B	M

Below, Table 4.17 details the sequence of statement cards for Factor 3 participants, along with a z-score that indicates how far and in what direction each statement deviated from its distribution's mean. The statement card rankings varied from the most preferred (z-score of 1.860) to the least preferred (z-score of -1.829).

Table 4.17: Factor 4 – Normalized Factor Scores

Card	Statement	Z-Score
14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.	1.860
4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.	1.761
22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.	1.495
5	Effective PD is aligned to the school's mission, vision, and values.	1.263
30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.	1.142
19	Effective PD uses multiple data sources to measure teacher and student performance and learning.	1.127
8	Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	1.102
26	Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance.	0.934
13	Effective PD offers both individual and school-wide choice with regard to topics that are offered.	0.902
6	Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished.	0.785
21	Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students.	0.691
27	Effective PD requires the principal to engage with and encourage teachers to reflect upon teaching practices and student outcomes.	0.622
23	Effective PD fosters academic learning of both the teacher and student.	0.488
18	Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized.	0.406
29	Effective PD requires a principal that guides instructional change.	0.182
1	Effective PD requires teachers to collaborate.	-0.004

**PD= Professional Development*

Table 4.17 (continued)

Card	Statement	Z-Score
9	Effective PD that is integral to student and teacher learning is school based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices.	-0.077
20	Effective PD requires extensive reflection about beliefs, practices, and ways of working with others.	-0.115
34	Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs.	-0.192
11	Effective PD provides learning opportunities that reflect the individual needs of teachers.	-0.246
28	Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum).	-0.334
25	Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject.	-0.360
12	Effective PD encourages teachers to redesign their teaching to support a multitude of diverse learners, but does not require teachers to do "one type" of teaching.	-0.382
33	Effective professional development is part of a "grand plan," facilitated by school leaders, that is implemented in small and incremental chunks.	-0.572
2	Effective PD requires the principal to actively encourage teachers to collaborate and support each other.	-0.621
15	Effective PD aligns with the assumptions and beliefs of staff members.	-0.844
3	Effective PD uses peer coaching.	-0.886
35	Effective PD within a school requires the attendance of school administration at the trainings and workshops.	-0.937
31	In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices offering support and seeking advice about instructional matters.	-1.010
24	Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school.	-1.029
32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.	-1.078
10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.	-1.283
17	Effective PD is long-term, sustained, and content focused.	-1.374
16	Effective PD promotes and tests new ideas that may seem difficult or threatening.	-1.584
7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.	-1.829

**PD= Professional Development*

Figure 4.5 is a model sort for the participants who loaded significantly on Factor 4, and represents what 19% of the participants perceived to be effective elements of professional development.

Least Prefer				No Preference				Most Prefer
-4	-3	-2	-1	0	+1	+2	+3	+4
7	10	3	2	1	6	8	5	4
16	17	24	12	9	18	13	22	14
	32	31	15	11	21	19	30	
		35	25	20	23	26		
			33	28	27			
				29				
				34				

Figure 4.5: Factor 4 Model Sort

Below, Table 4.18 details the highest and lowest-placed statement cards for the Factor 4 participants. Statements placed at the boundaries of the sorting grid are most representative of those participants who loaded significantly on Factor 4, marking important Factor 4 extremes that are representative of teachers in the study and their perceptions about effective professional development.

Table 4.18: Factor 4 – High Positive and High-Negative Statements

Score	Card	Statement
+4	4	Effective PD requires structures to be put in place that provides time for teachers to collaborate.
+4	14	In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered.
+3	5	Effective PD is aligned to the school's mission, vision, and values.
+3	22	Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students.
+3	30	Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives.
-3	10	Effective PD includes support from outside the school that can provide necessary resources and an outside perspective.
-3	17	Effective PD is long-term, sustained, and content focused.
-3	32	Effective PD requires the principal to actively encourage teachers to become peer coaches and provides opportunities for teachers to do so.
-4	7	Effective PD focuses on the concrete tasks of teaching, assessment, observation, and reflection.
-4	16	Effective PD promotes and tests new ideas that may seem difficult or threatening.

**PD= Professional Development*

Of the teacher participants in the current study, 19% loaded significantly on Factor 4, "Supportive Structures and Environment." Using the z-score values, the group's four highest scoring statements contained language like: structure that provides time to collaborate; seeks input; aligned to the school's mission, vision, and values; provides opportunities for teachers; and create and support an environment of risk-taking. Specifically, the group sorted Statements 4, 14, 5, 22, and 30 on the +4 and +3 or "Most Prefer" side of the distribution grid.

The Factor 4 group participants provided varied comments and viewpoints related to the importance of support structures and environments in effective professional development. Notably, some of these, in part, also addressed Factor 3, collaboration, with specific regard to the need for support structures and school environments that enable collaborative learning among teachers. According to Hirsh (2005), school leadership should create strong structures and vehicles that allow teachers to help and collaborate with their colleagues, and it is best when "there are regular times during the school day for teachers to meet and examine student work, evaluate it against standards, and determine strategies for getting better results" (Hirsh, 2005, p. 40). Speaking to the specific design of such support structures, Blase and Blase (2000) argued that the structures of support should be ongoing and sustained with small incremental steps.

With regard to structures and environments for professional development, participants in the current study offered various viewpoints and comments. Participant 17 reported preferring professional development that is aligned with school goals and is school-based and, though she did not believe that professional development must be outsourced, she did feel that it should provide apt time for teachers to collaborate. Arguably, with the small amount of time available for teachers to work together professionally, in just a few workdays and early release days throughout the year, structures should be in place that allow for considerable planning and work with other professionals within the school. Addressing the value of working with peers in one's own school, Participant 18 wrote, "Effective professional development is not necessarily conducted through meetings, and outsiders do not always know our processes, students, etc. very well." Participant 25 also agreed that

professional development requires teamwork. Thus, these participants' responses pointed to the importance of schools having structures or mechanisms that afford teachers the time to work together with their peers in the school.

Speaking specifically to the kind of school support structures and environments needed for collaboration on professional development, Guskey (2000) agreed, observing that a "norm of experimentation exists in schools that permits educators to try new instructional practices without fear of criticism" (p. 170). In agreement with Guskey's claim, Participant 42 in the current study stated that there must be "lots of safe collaboration" among teachers. By making such a claim, Participant 42 seemed to suggest that key processes and procedures designed around collaboration must be in place in order to make teachers feel secure as they share and try new pedagogical practices, and that an expected and supported degree of risk-taking is needed in a school in order for improvement to be seen.

Darling-Hammond (2010) declared professional development to be the most important work teachers do in schools, adding that it should help teachers to analyze the skills and understandings students are expected to know and do; in other words, effective professional development should help teachers develop pedagogical practices related to their specific subject matter. In the current study, Participant 18 agreed, asserting that a "one-size-fits-all" approach is not best for professional development in a high school, because there should be structures in place that allow teachers to work and develop their pedagogy in individual content areas. She indicated that sitting through meetings did not necessarily move her to change her pedagogical classroom practices, but having the opportunity to collaborate with colleagues in her content area did. Participant 20, however, while she valued peer

coaching, did not feel it absolutely necessary that professional development structures in schools require collaboration among teachers in the same subject areas, writing:

> Although I feel strongly about peer coaching, I don't think it should be required. Teachers who know their content well, and are also innovative, engaging teachers, should be the instructional leaders in the school. Even if you are a math teacher, you can also have teaching "tips" for a variety of content areas.

Participant 20 further indicated that having the opportunity or structure in place to observe professional development strategies being used by someone, such as another teacher, would make her more apt to "buy in" to the training. Hence, findings of the current study suggested that teachers appreciate the chance to learn from others in their field, though not all may deem it critical for effective professional development.

Some participants in the study addressed structures and environments of professional development as they pertain to application of knowledge. For example, Participant 26 indicated that she viewed good professional development as that which provides information that is easy to use and easily transferrable to her content and classroom. She admitted that she liked "to have something that is explicit and ready to roll," adding:

> I especially appreciate it when someone literally puts in my hand – "I tried this now you can try this too" – basically giving me a rationale for why I should use this professional development.

Participant 26, then, felt that processes should be in place to include teacher input in the professional development decision-making process.

One of the teachers in the current study, Participant 26, addressed "access to technology" as an important professional development structure for schools to have in place. Besides suggesting, as did a number of other participants, that there must be time for teachers to work together in order to collaborate and plan effective lessons, she also claimed that technological tools are needed in order for teachers to be able to push kids to achieve the kinds of performance levels required today.

Some of the statements in the current study were particularly difficult to sort. These included Statement 18 for Participant 14, who agreed that professional development should train the teacher to engage while preparing students to apply what they have learned rather than merely recite what they have memorized; however, she also felt like teachers should be doing so anyway, stating, "It seems like it should be a given, not a need, for professional development." Participant 17 had difficulty with Statements 5 and 9, declaring, "Professional development that is school-based is best. Professional development does not always have to be outsourced and not necessarily part of a "grand plan" in the school." Likewise, Participant 18 echoed the sentiment, saying, "I don't feel I need to be micromanaged by an administrator or outside consultant to improve my practice." Finally, Participant 25 indicated that Statement 15, aligning professional development with the beliefs of staff members, was difficult to place, noting that "it seems like it would be difficult for a large school to effectively implement."

Participants in the Factor 4 group reported valuing supportive structures that enable them to have a voice in their professional development needs, as well as an environment where they feel safe trying new approaches. Most participants in the group did not seem to

believe that effective professional development should promote and test new ideas that may seem difficult or threatening, nor should it focus on the concrete tasks of teaching, assessment, observation, and reflection. However, post-sort interviews indicated that testing new ideas is, in fact, part of professional development, it is not threatening—and it is exactly what teachers should be doing.

Consensus Statements

Certain statements were preferred or not preferred by participants from the four factor groups, known as consensus statements, which are statements not distinguished between any pair of factors (Watts & Stenner, 2012). This means that, on each of Factors 1 through 4, the consensus statements ranked very similarly or nearly the same. Identifying these consensus statements assisted the researcher in determining participants' shared beliefs about professional development. Table 4.19 below outlines the consensus statements in this study.

Table 4.19: Consensus Statements

Statement	Factor 1 Values	Factor 2 Values	Factor 3 Values	Factor 4 Values
33**	0	-2	-1	-1
31	-1	-2	-2	-2

***indicates a non-significant statement at p>.01; all other statements were non-significant at p>.05*.

As the table indicates, there were two consensus statements identified with the PQMethod program. For each of the four factors, the following two statements were found to be consensus statements that ranked comparably, suggesting that all of the study participants felt very similarly or nearly the same about them: Statement 31 ("In schools with effective

PD, the principal spends time speaking formally and informally with teachers about instructional practices, offering support and seeking advice about instructional matters"), and Statement 33 ("Effective professional development is part of a 'grand plan,' facilitated by school leaders, that is implemented in small and incremental chunks"). Specifically, both statements were placed in the 0 to -2 columns, indicating that participants were at least indifferent to, or did not prefer, the statements. Although only two consensus statements were identified statistically using the PQMethod, there were other statements that rated alike on all factors with similar themes, and these are discussed below.

Participants also ranked consistently Statement 20, "Effective PD requires extensive reflection about beliefs, practices, and ways of working with others." In particular, participants ranked this statement at 0, -1, -3, and 0 in the "least prefer" area of the distribution grid. These findings were notably aligned with the assertions of Thompson and Zeuli (1999). They suggested that professional development can create sufficient dissonance which can disturb teachers' existing ideas about their subject material, teaching practices, and learning. They went on to maintain that adequate time must be provided for teachers to think through their conflicts around new ideas, in order to enable them to

> connect the new ideas to their own students and contexts; help them develop a repertoire of strategies and techniques to draw on in the ongoing flow of practice; and support the continuing reconstruction of practice over an extended period" (Thompson & Zeuli, 1999, p. 363).

Similarly, Statement 3, "Effective PD uses peer coaching" was also ranked on the "least prefer" side of the distribution grid, revealing that the teacher participants did not feel peer

coaching was a necessary part of effective professional development. However, Showers (1990) and Elmore and Burney (1999) have all suggested that peer coaching be included as part of professional development in schools. Hence, the findings of how the group of teachers in the current study perceived the need for peer coaching were contradictory to existing researchers' claims about effective professional development.

On the positive side of the continuum, participants mildly agreed with Statement 6, "Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished," only ranking the statement as 2, 3, 3, and 1 on the "prefer" side of the distribution grid. Such a low ranking generally supports the work of Sykes (1999) and others who have insisted that learning is ongoing and is something that should be part of the teaching and learning process during a teacher's entire career.

More neutral results were found with Statement 28, "Effective PD requires the principal to be familiar with learning teacher pedagogy and student curriculum." Participants neither marked "prefer" nor "least prefer," which was placed in the center of the distribution grid at 0, 0, 1, and 0 by the factor groups. In opposition, Darling-Hammond (2010), Finn (1991), and Gaziel, (2007) have all indicated the importance of the principal knowing and understanding learning in order to lead the school. It therefore appears from the research group in the current study that the principal's knowledge of their particular pedagogies and student curricula is not as important to them.

Despite the neutral findings with Statement 28 as discussed above, the participants did express ideas and beliefs about what constitutes a good principal. For example, Participant 38 indicated that "principals need to empower teachers and be willing to let them

take risks," as well as "provide resources to implement teacher-led ideas." Participant 2 claimed she looked for "excitement" from principals and appreciated them knowing what should be done. Also, Participant 5 acknowledged appreciating support and encouragement from the school administrator. Overall, these participants' statements suggested that teachers seek school principals that can provide support and encouragement with regard to professional development, rather than be the "expert" with regard to knowing all of the professional development themselves.

In conclusion, the four factor groups expressed common beliefs about professional development. In particular, they believed professional development should be ongoing and continuous throughout their careers. They also generally believed professional development should focus on their individual needs, focus on student and teacher learning, be collaborative in nature, and provide an environment with supportive structures for them to work and take risks. Notably, teachers did not indicate a high preference for principals spending time speaking formally and informally with them about instructional practices to offer support and seek advice about instructional matters, nor did they indicate a strong preference for principals acting as instructional specialists. Although teachers want support and resources from the principal, the teacher participants in the study suggested that they do not necessarily expect that person to be the one who prepares, delivers, and understands all the professional development.

Distinguishing Statements

Distinguishing statements are statements that rank significantly different on one factor compared to all the other factors, and analyzing the distinguishing statements allows the researcher to obtain a more holistic interpretation of each factor's nature. In the current study, Factor 1 scored 10 distinguishing statements; Factor 2 scored 9 statements; Factor 3 scored 14 statements; and Factor 4 scored 11 statements. Tables 4.20, 4.21, 4.22 and 4.23 display the most significant distinguishing statements for each of the four factors. A short description of the data precedes each table.

Of the 10 distinguishing statements for Factor 1, eight statements were significant at the $p<.01$ level. The highest two, positive distinguishing statements for Factor 1 addressed the importance of teacher choice and needs, and stated: "Effective professional development offers both individual and school-wide choice with regard to topics that are offered," and "Effective professional development provides learning opportunities that reflect the individual needs of teachers." While these were important to the study participants, the bottom two, lowest distinguishing statements for Factor 1 were: "Effective professional development requires a principal that guides instructional change," and "Effective professional development within a school requires the attendance of school administration at the trainings and workshops." Clearly, participants in the Factor 1 group valued having their individual professional needs met and did not value, as greatly, the principal or school leader engaging with them about pedagogy and/or attending the professional development sessions. Table 4.20 below lists the distinguishing statements for Factor 1, Individual Teacher Needs.

Table 4.20: Distinguishing Statements, Factor 1- Individual Teacher Needs

	Factor 1		Factor 2		Factor 3		Factor 4	
Statement	Rank	Score	Rank	Score	Rank	Score	Rank	Score
13	4	1.97*	0	-0.21	0	-0.37	2	0.90
11	4	1.96*	0	-0.06	1	0.56	0	-0.25
34	3	1.57*	0	-0.36	0	-0.37	0	-0.19
22	1	0.66	3	1.58	2	1.21	3	1.49
10	1	0.62*	-3	-1.22	-4	-2.14	-3	-1.28
21	0	.08*	2	0.80	-3	-0.99	1	0.69
16	-1	-.079*	-4	-1.93	0	-0.11	-4	-1.58
9	-2	-0.90	-1	-0.38	4	1.87	0	-0.08
27	-3	-1.07*	1	0.04	2	0.62	1	0.62
35	-4	-1.91*	-2	-0.77	-1	-0.46	-2	-0.94

** indicates significance at p<.01*

For Factor 2, five of the statements were significant at the p<.01 level. The highest two, positive distinguishing statements for Factor 2 were: "Effective professional development is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school," and "Effective professional development focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized." Both statements dealt with the importance of teacher as well as student learning. On the other side of the spectrum, the bottom two, lowest distinguishing statements for Factor 2 were: "Effective professional development aligns with the assumptions and beliefs of staff members, and "Effective professional development promotes and tests new ideas that may seem difficult or threatening. These suggested that the participants did not feel that professional development needed to align with the assumptions and beliefs of staff members, or that effective professional development required the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives. Overall, then, the participants in the Factor 2

group valued learning on the part of both teachers and students, and did not value as greatly principal involvement or the idea of aligning the professional development with staff beliefs. Table 4.21 below lists the distinguishing statements for Factor 2, Student and Teacher Learning.

Table 4.21: Distinguishing Statements, Factor 2- Student and Teacher Learning

	Factor 1		Factor 2		Factor 3		Factor 4	
Statement	Rank	Score	Rank	Score	Rank	Score	Rank	Score
24	-1	-0.42	4	2.40*	-1	-0.47	-2	-1.03
18	2	0.83	4	1.89*	-1	-0.44	1	0.41
8	1	0.70	3	1.68	2	0.79	2	1.10
27	-3	-1.07	1	0.04	2	0.62	1	0.62
4	2	1.08	0	0.02*	3	1.25	4	1.76
17	-1	-0.60	0	-0.06	-2	-0.56	-3	-1.37
14	3	1.48	0	-0.24*	4	2.02	4	1.86
30	2	0.75	-3	-1.18*	1	0.45	3	1.14
15	-2	-0.83	-4	-1.36	-1	-0.40	-1	-0.84

** indicates significance at p<.01*

For Factor 3, nine distinguishing statements were significant at the p<.01 level. The highest two, positive distinguishing statements for Factor 3 were: "Effective professional development that is integral to student and teacher learning is school-based," and "Effective professional development requires the principal to actively encourage teachers to collaborate and support each other." Notably, both statements focused on teachers and administrators working together within the school setting. On the other hand, the bottom two, lowest distinguishing statements for Factor 3 were: "Effective professional development includes support from outside the school that can provide necessary resources and an outside perspective," and "Effective professional development is driven by the analyses of the differences between goals and standards for student learning and student performance."

Thus, on the whole, the participants in the Factor 3 group valued working with their teacher peers within the school setting, but did not value as greatly the analyses of what students should have learned versus what they have actually learned – i.e., the use of data. Table 4.22 below lists the distinguishing statements for Factor 3, Collaboration.

Table 4.22: Distinguishing Statements, Factor 3- Collaboration

	Factor 1		Factor 2		Factor 3		Factor 4	
Statement	Rank	Score	Rank	Score	Rank	Score	Rank	Score
9	-2	-0.90	-1	-0.38	4	1.87*	0	-0.08
2	0	-0.11	1	0.21	2	0.82	-1	-0.62
11	4	1.96	0	-0.06	1	0.56*	0	-0.25
28	0	-0.34	0	-0.31	1	0.40*	0	-0.33
7	-2	-0.93	-1	-0.58	0	-0.02	-4	-1.83
16	-1	-0.79	-4	-1.93	0	-0.11*	-4	-1.58
23	1	0.72	1	0.32	0	-0.30*	1	0.49
18	2	0.83	4	1.89	-1	-0.44*	1	0.41
5	0	-0.08	1	0.30	-2	-0.64	3	1.26
29	-4	-1.35	-3	-1.31	-2	-0.71	0	-.18
21	0	0.08	2	0.80	-3	-0.99*	1	0.69
19	-1	-0.74	-1	-0.49	-3	-1.30	2	1.13
10	1	0.62	-3	-1.22	-4	-2.14*	-3	-1.28
26	-3	-1.26	-2	-0.96	-4	-2.21*	2	0.93

** indicates significance at p<.01*

For Factor 4, eight distinguishing statements were significant at the p<.01 level. The highest two, positive distinguishing statements for Factor 4 were: "Effective professional development requires structures to be put in place that provides time for teachers to collaborate," and "Effective professional development is aligned to the school's mission, vision, and values." Both statements addressed the importance of systems and structures that enable a collaborative working environment, and which are aligned to the school's stated purpose and views. Conversely, the bottom two, lowest distinguishing statements for Factor 4 were: "Effective professional development is long-term, sustained, and content-focused,"

and "Effective professional development focuses on the concrete tasks of teaching, assessment, observation, and reflection." Therefore, as a whole, the participants in the Factor 4 group valued a supportive environment within the school setting, though not as greatly valuing professional development that is long-term. Below, Table 4.23 lists the distinguishing statements for Factor 4, Supportive Structures and Environment.

Table 4.23: Distinguishing Statements, Factor 4- Supportive Structures and Environment

	Factor 1		Factor 2		Factor 3		Factor 4	
Statements	Rank	Score	Rank	Score	Rank	Score	Rank	Score
4	2	1.08	0	0.02	3	1.25	4	1.76
5	0	-0.08	1	0.03	-2	-0.64	3	1.26*
19	-1	-0.74	-1	-0.49	-3	-1.30	2	1.13*
26	-3	-1.26	-2	-0.96	-4	-2.21	2	0.93*
13	4	1.97	0	-0.21	0	-0.37	2	0.90*
29	-4	-1.35	-3	-1.31	-2	-0.71	0	0.18*
12	1	0.52	2	0.67	1	0.43	-1	-0.38*
2	0	-0.11	1	0.21	2	0.82	-1	-0.62
24	-1	-0.42	4	2.40	-1	-0.47	-2	-1.03
17	-1	-0.60	0	-0.06	-2	-0.56	-3	-1.37*
7	-2	-0.93	-1	-0.58	0	-0.02	-4	-1.83*

** indicates significance at p<.01*

Chapter Summary

Chapter 4 included an analysis of the data collected from 41 high school teachers regarding their perceptions of effective professional development. Three sources of data were used to develop the findings. First, Q-Sorts were completed, and a factor analysis then used to compute the statistical data from the Q-Sorts. Second, using the Q-Sort information, Post-Sort Surveys were used to further explore and refine teacher's beliefs about professional development, and from this four distinct factors emerged. Third, and finally, Post-Sort

Interviews were conducted with a sample of participants who loaded significantly on each of the four identified factors. Altogether, a combination of quantitative and qualitative data was analyzed to gain deeper insight into teachers' perceptions and beliefs about effective elements of professional development.

Factor 1, "Individual Teacher Needs," can be described as teachers' belief that effective professional development provides learning opportunities which reflect the individual needs of teachers. That is, according to Factor 1 participants, teachers are more willing to use professional development when the primary focus is on meeting the needs of individual teachers, and creating and offering professional development directly linked to their particular subject areas. Teachers in the Factor 1 group maintained that changes in their classroom teaching practices will not occur unless they are offered professional development that explicitly and directly relates to what they are doing in their classrooms daily with regard to their particular subject material.

Factor 2, "Student and Teacher Learning," can be described as teachers' belief that effective professional development focuses on their learning as well as that of their students. In particular, Factor 2 participants had a set of beliefs about professional development that were rooted in the concept of being a life-long learner. Effective professional development, for them, helps to create a school culture of continuous improvement in which learning about best practices is ongoing and never finished. Moreover, in such a school culture, there is also a targeted focus on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized; for a teacher to learn how to aptly prepare students in this way requires, on their part, extensive reflection about beliefs,

practices, and ways of working with students. Finally, the teachers in the Factor 2 group believed effective professional development should focus on the learning outcomes of the teacher and how the teacher can best provide for the optimal learning of students.

Factor 3, "Collaboration," can be described as teachers' belief that effective professional development provides opportunities for collaboration, whereby teachers can engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students. Teachers in the Factor 3 groups also felt that school leaders and principals should actively encourage teachers to collaborate, as well as provide the needed structures of support for them to do so. According to Factor 3 participants, who valued collaboration and want to learn from other teachers, seeing concrete examples of classroom teaching innovations and having time to apply and work on the innovations is the best kind of professional development.

Factor 4, "Supportive Structures and Environment," can be described as teachers' belief that effective professional development is marked by supportive structures, procedures, and overall school environments that work to help teachers with implementing new practices. More specifically, teachers in the Factor 3 group sought structures to be put in place that provide time for teachers to share their craft with peers, including support from outside the school that can provide necessary resources and outside perspectives. These teachers also expressed the desire to work in schools that encourage teachers to redesign their teaching to support a multitude of diverse learners, rather than requiring teachers to do just "one type" of teaching. Overall, Factor 3 participants wanted to work in a professional environment that promotes and tests new ideas which may seem difficult or threatening, requiring the principal

to support risk-taking with regard to planning and implementation of new instructional initiatives.

The participants in the current study understood the importance of professional development and valued varying characteristics of effective professional development. As a whole, findings of the study indicated that teachers relate to or perceive professional development as effective when it meets their individual needs, focuses on student and teacher learning, offers time to collaborate, and is provided with supportive structures and working environment.

Following, Chapter 5 includes a discussion of the current study's results using Gary Sykes' conceptual framework, as well as a description of the implications of the study on policymakers, practitioners, and future researchers.

CHAPTER 5: DISCUSSIONS AND IMPLICATIONS

Teachers' perceptions about effective professional development, as gathered in the current study, do not align precisely with research literature or the conceptual framework created by Gary Sykes, and there are similarities as well as some stark differences. Teachers in the current study perceived professional development to be effective and were willing to consider changing their classroom teaching practices if the professional development meets their individual needs, focuses on student and teacher learning, and provides time for collaboration, all within a supportive environment. However, teachers in the current study did not necessarily believe that the principal should direct the professional development, and they did not perceive data monitoring to be an integral link to effective professional development, as Gary Sykes and other researchers have suggested. This chapter provides a summary analysis of these main findings, along with an in-depth discussion correlating and connecting the findings to research literature and to Sykes' framework, discussed in Chapter 2. Using an analytical lens through which to examine and explore teachers' perceptions of effective elements of professional development, and based on findings from the current study, clarity will be provided about what, in fact, encourages teachers to reflect upon and make changes to their teaching practices. Finally, with regard to professional development characteristics most desired by teachers and most likely to encourage changes in their teaching practices, the subsequent analysis will explore implications and recommendations for policymakers, public school personnel, and future research studies.

Summary of Findings

There were four distinct perspectives, or factors, that emerged from the current study. Together, these four perspectives provide a vivid account of what teachers believe to be effective elements of professional development. Notably, there are some marked similarities as well as clear distinctions between the four factor groups.

Distinct Factor Characteristics

Factor 1, "Individual Teacher Needs," represents the belief that effective professional development provides learning opportunities that reflect the individual needs of teachers. Teachers in the Factor 1 group indicated that they are more willing to use the professional development offered at school, and even alter their teaching practices, when choice is offered with regard to topics. In other words, the primary concern of Factor 1 participants was meeting the needs of individual teachers, in particular by creating and offering professional development directly linked to the teachers' subject areas. These teacher participants believed professional development should not be a school-wide, one-size-fits-all type of training. Instead, it should involve the teacher learning and gaining knowledge about the subject or course content, ways to teach the material, and how students learn the subject. Moreover, participants in the Factor 1 group maintained that changes in pedagogy or classroom practices will not occur unless teachers are offered professional development that explicitly and directly relates to what they are doing day to day in the classroom with regard to each teacher's particular subject material.

Factor 2, "Student and Teacher Learning," represents the belief that a focus on teacher learning and the learning of their students is a requirement for effective professional development. Factor 2 participants held a set of beliefs about professional development rooted in the concept of being a life-long learner. For them, effective professional development helps to create a school culture of continuous improvement, in which learning about best practices is ongoing and never finished. Additionally, teacher participants in the Factor 2 group believed in a targeted focus on aptly training the teacher to engage and prepare students to apply what they have learned, rather than to simply recite what they have memorized. Such a targeted type of learning by the teacher requires especially extensive reflection about beliefs, practices, and ways of working with students. Finally, Factor 2 study participants sought professional development that focuses on the learning outcomes of the teacher as well as how teachers can best provide for the optimal learning of students.

Factor 3, "Collaboration," represents the belief that collaboration is valuable for effective professional development, and these participants sought professional development that provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students. Furthermore, the Factor 3 group believed school leaders and principals should actively encourage teachers to collaborate and provide the needed structures and environments of support in order for them to do so, such as specific days and times that the staff is expected to spend working in and sharing best practices with peer teams, reviewing achievement data, and making plans about individual student needs. According to Factor 3 participants, they are more willing to alter their teaching practices when given the chance and the time to learn

from other teachers, observe concrete examples of classroom teaching innovation, and work on the innovation; these factors mark the best kind of professional development for Factor 3 participants, while also helping to meet their individual learning needs.

Factor 4, "Supportive Structures and Environment," represents the elements of professional development that teachers perceive to be most effective, specifically with regard to implementing new practices. Teachers in the Factor 4 group desired structures to be in place at the school to provide time for teachers to share their craft with one another, including support from outside the school that can also provide necessary resources and outside perspectives. Factor 4 participants felt that effective professional development requires doing specific work in schools to encourage teachers to redesign their teaching practices in order to support a multitude of diverse learners; teachers in this group did not believe that all teachers should be required to do "one type" of teaching. Rather, they wanted to work in a professional environment that promotes and tests new ideas, and which requires the principal to support risk-taking with regard to planning and implementation of new instructional initiatives.

Similar Factor Characteristics

It should be first noted that individuals in all four factor groups, and follow-up interview participants, cited that collaboration, or working with other teachers, was important to them, though some small distinctions remained. For example, the Factor 1 group, "Individual Teacher Needs," and the Factor 4 group, "Supportive Structures and Environment," both indicated that effective professional development should involve learning from other teachers. Comparably, the participants in the Factor 1 group, "Individual

Teacher Needs," and the Factor 3 group, "Collaboration," reported that working and collaborating with other teachers was a good way to meet individual teachers' instructional needs. However, although these two groups were similar in that they both wanted to collaborate and work with other teachers, the primary focus for the Factor 1 group was to meet individual teachers' needs, while Factor 3 participants desired working with other teachers to share current practices around school initiatives, in order to improve their teaching. Similarly, the Factor 3 study group, "Collaboration," most valued the concept of working together with other teacher peers on school initiatives, much like the teachers in the Factor 4 group, "Supportive Structures and Environment," who valued collaboration. Still, the Factor 4 participants differed, going even further and addressing the need for a supportive school environment with specific, tangible working structures that provide the staff with time and procedures to accommodate their collaborative sharing of individual ideas and innovations.

Moving away from the concept of collaboration that was popular in the current study, participants in the Factor 1 group, "Individual Teacher Needs," and the Factor 2 group, "Student and Teacher Learning," valued individual teacher choice with regard to effective elements of professional development. Another similarity was that participants in the Factor 2 and Factor 4 groups, respectively "Student and Teacher Learning" and "Supportive Structures and Environment," were focused on the idea of moving both teachers and students into the arena of continuous learners; where these groups differed, though, was in that Factor 2 participants sought adequate time for teachers to reflect upon what they have learned, while

Factor 4 teachers desired a school atmosphere in which teachers are free to try new approaches and make mistakes as part of the learning process.

From the current study's findings, it seemed that personal experience with professional development in schools played a major role in how teachers responded to sorting the card statements, and in what they perceived as effective professional development that would influence them to make changes to their teaching practices. Participants often discussed what they liked or disliked about the format of professional training to which they had been exposed. While some teachers reported their professional development experiences as helpful, and others did not, overall there remained a general hope and desire among all of the participants to improve as professionals and influence the growth and performance of their students.

Overall, participants in the current study felt their role was to serve their students and become better teachers. They also indicated that effective professional development needed to be relevant to their individual subjects and their individual teaching and learning needs. Additionally, the teachers believed it was important to work, collaborate, and share school initiatives or individual projects with each other, in order to learn together. With regard to the roles of the principal or administrator, teachers believed the administrators' role in facilitating professional growth was to work with teachers to identify the needs of the school and of individual teachers, and then find the resources to support both. They also believed the administrators should support professional development, but not necessarily be the ones presenting or directing it. Furthermore, a school environment that offered structures and

support for excellent professional development and risk-taking was important to teachers in the study.

The research findings indicated that there were similarities and differences among teachers' perceptions of effective elements of professional development. As noted earlier, teachers' previous and personal experiences influenced their perceptions about effective professional development. Their beliefs about elements of effective professional development included having the ability to provide input about the professional development topics or initiatives; meeting the individual needs of teachers; working in a collaborative atmosphere; and providing structures of support that invite teachers to try new initiatives and take risks with regard to their teaching and learning.

Findings Consistent with the Literature

This section includes a comparative look at the research findings of the current study as they relate to the available body of literature on effective professional development for teachers reviewed in Chapter 2, specifically those findings that are consistent with the literature. Information acquired from the Q-Sorts, emerging factors, post-sort surveys, and post-sort interviews were analyzed and compared to the best practices that have been identified in other research about effective professional development, in order to evaluate how closely the findings of the current study relate to other research.

There were numerous scholarly studies, articles, and books about effective elements of professional development highlighted previously in Chapter 2, and many of these cited texts can be found in the Literature Review table in Appendix A. To sum up, several

important findings emerged from the literature review as significant, suggesting that effective professional development for teachers must: be continuous and ongoing, providing sustained examination of student learning; be site-specific; involve teachers; offer teachers time to collaborate with peers; be connected to the student curriculum; use multiple data sources to evaluate effectiveness; provide opportunities for teachers to engage in developing a theoretical understanding; and, finally, be integrated with a comprehensive change process to improve student learning (Darling-Hammond, 2010; Elmore, 1992; Elmore & Burney, 1999; Fullan, 1991; Guskey, 1995, 2000; Hawley & Valli, 1999; Joyce & Showers, 2002; Militello et al., 2009; Sykes, 1999; Thompson & Zeuli, 1999). The findings in the current study were consistent with many of these researchers' claims about effective professional development, as teacher participants pointed to similar elements as important to them.

With regard to professional development, Sykes (1999) supported an emphasis on meeting individual teacher needs, agreeing that school leaders must embed professional development within the content of students' curricula and use the teacher (adult) learning connection to select and design professional development. Guskey (2000) also endorsed such an "individually-guided" approach to professional development in his research:

> Educators determine their own individual professional development goals and then select the activities that they believe will result in the achievement of those goals. The model is based on the assumption that individuals can best judge their own learning needs and are capable of self-direction and self-initiated learning. (p. 27)

Consistent with these researchers' claims, a significant number of teacher participants in the current study reported believing that effective professional development should meet the

individual needs of teachers, because providing a "one-size-fits-all" training for the entire school is not the "always preferred" method. They wanted to be involved in the planning, training, and implementation of their professional development, and they also wanted to work in an environment that encouraged both individual and school-wide growth. For example, Participant 11 stated, "I feel that professional development should be [tailored] to the individual teacher's needs, the same as student learning." Correlating with researchers' assertions, teacher participants in the current study indicated, again and again, that they were more likely to change their teaching practices if the professional development they attended was specific to their content and provided examples and resources that they could quickly use in their classrooms.

Hawley and Rosenholtz (1984) addressed the issue of teachers' impact on students; their comments on the matter are quoted in full in the Chapter 2 literature review. They maintained that "teachers prove to have a greater impact [on student performance] than program" (Hawley & Rosenholtz, 1984, p. 3), and went on to point to the "enormous amount of evidence that teachers have a significant impact on efforts to change schools and on the nature of the students' experience" (Hawley & Rosenholtz, 1984, p. 7). The current study's findings were consistent with these claims. Many teacher participants reported feeling that they knew and understood, better than anyone else, what was needed to improve the performance of their students and their personal performance as teachers, since they are ultimately the ones responsible for making the changes in the classroom needed to affect student learning. For example, Participant 37, a high school teacher with 10 to 14 years of teaching experience, stated:

> Professional development should be individual. I don't need the same training as a first-year teacher. Professional development is good and necessary, but I'm tired of being told what I need to be trained on.

With regard to the influence of teachers on student performance, then, findings in the current study supported the research literature in suggesting that teachers' impact cannot be understated.

In addition to teachers' great impact on students, the literature reviewed in Chapter 2 suggested the value and importance of having teachers act as leaders in professional development plans and activities. For example, according to Lieberman et al. (2000):

> Improving staff development using teacher leaders is an important tool to consider. Teacher leaders have characteristics that legitimize their positions in schools. They can promote and build support for professional development while fostering positive attitudes among other staff members. Teachers develop a sense of ownership when their expertise is sought and used when creating professional development plans. (p. 350)

Participant 38 in the current study agreed, explaining, "Professional development should be teacher-led. Teachers know their students," and she went on to declare, "Teachers should be in charge of professional development." When asked what about professional development influences her to make changes in her teaching practices, Participant 38 responded, "Is it practical and relevant to my subject? Will I have the resources to implement it? Principals need to empower teachers and be willing to let them take risks. Principals need to provide funds and resources to implement teacher-led ideas." Additionally, Participant 37 said it was

"good for veteran teachers to step up and lead their peers." Thus, the findings of the current study are consistent with the literature on the value of teacher leaders in professional development.

Research literature discussed in Chapter 2 also points to teacher-led professional development as something that increases teacher interest, involvement, and commitment. Professional development must involve teachers in the identification of what they need to learn and, when possible, in the development of the learning opportunities and the processes to be used, or else teachers' engagement, motivation, and commitment to learning will be significantly decreased (Hawley & Valli, 1999). Even more, when teachers are denied the opportunity to give input about their training, "they are likely to become cynical and detached from school improvement efforts and to reject what they experience as imposition" (Hawley & Valli, 1999, p. 139), which is often the case in many schools and the reason why teachers do not strongly support the training they are provided. Concurring with the literature, Participant 24 in the current study felt that allowing teacher input was most important, writing, "Teachers need more input into professional development" and claiming that there were too many "top-down" mandates. Hence, many teachers who participated in the current study addressed the value of teachers having input on professional development planning and design, concurring with research literature on the subject as reviewed earlier.

Blase and Blase (2000), Gimbel et al. (2011), Showers (1990), and Sykes (1999) have all agreed that essential elements of staff development, such as teacher choice and involvement in the planning stages, are important. Blase and Blase (2000) noted that teachers wanted choice with regard to professional development topics, believing that the training

they received should focus on improving their classroom instruction. Notably, teachers in the current study agreed with the research about the importance of teacher involvement in professional development, feeling that teachers should, indeed, be involved in choosing training topics that meet their specific needs and relate to their individual subjects. For example, Participant 24 acknowledged valuing professional development that she feels she actually needs, and Participant 8 agreed, saying, "We need more choices and topics regarding professional development." Speaking about the importance of her input as a teacher, specifically as it relates to choosing relevant and useful professional development topics, Participant 28 remarked:

> We are all kind of working toward the same goals. I feel like where I am in my teaching is different than a 2nd or 3rd year teacher…I feel I need to work on something that is a little more applicable to what I would be interested in.

Thus, with regard to the importance of teacher input and choice in professional development, the current study's findings from teacher participants revealed a correlation with the research literature.

Few studies have directly examined teachers' perceptions about principals' everyday instructional leadership characteristics as they relate to their impacts on teachers and to improving teaching and learning. However, one such study, conducted in 2000 by Blase and Blase at the University of Georgia at Athens, was a qualitative study identifying and describing characteristics of principals that enhanced teacher classroom instruction, as well as investigating what impacts those characteristics had on the teachers' altering of their teaching practices. Their data did reveal "two themes of effective instructional leadership

from teachers' perspectives: talking with teachers to promote reflection and promoting professional growth" (Blase and Blase, 2000, p. 130). Moreover, Blase and Blase (2000) found that teachers wanted principals who encouraged robust, deep reflection and provided and supported excellent professional development while displaying excitement to motivate the staff about new initiatives.

In alignment with the claims of Blase and Blase about administrators' roles, participants in the current study similarly believed their role in facilitating professional growth was to work alongside staff to identify the needs of the school and of individual teachers, and then find the resources to meet those needs. They also felt the administrators should support professional development, but not necessarily be the one presenting it or directing it. For example, when asked what about the principal or school leadership behaviors, with regard to professional development would influence changes in teaching practices, Participant 7 simply replied, "Support and encouragement." In fact, almost all of the participants wanted to feel support from their administrators. Some addressed the importance of administrative support as it specifically relates to risk-taking, which was identified as important and necessary for changes in classroom teaching practices to occur. Participant 10, for instance, looked for such support, but did not want to be "pushed" into a specific type of teaching. Likewise, Participant 12 wrote:

> School leaders that support teachers as they take risks influence me to make changes; taking risks can be great, but there is always a possibility of failure, so an administrative team that has faith in their teachers to try new things is a positive influence. An administrative team with knowledge about teacher pedagogy and/or

> experience with students and instructional practices – I would be more influenced by administrators with similar experiences to my own than by administrators with "book" or "workshop" experience.

The findings of the current study were, therefore, consistent with research literature regarding administrators' roles in professional development.

Researchers have suggested that, in order for instructional change to occur and for teachers to feel confident, a clear sense of institutional mission around the quality of instruction had to be present. Finn (1991) maintained that teachers sought schools with leadership that has:

> high expectations for all students and staff; a well-developed team spirit on the part of everyone working in the school; a safe and orderly atmosphere congenial to learning; and adroit leadership of the instructional process, ordinarily by a principal who views his or her role as that of an educational executive rather than a building manager. (p. 49)

Likewise, study participants asserted that professional development marked by "enthusiastic support" in a safe, supportive school environment most influenced them to make changes in their classrooms. Participant 2 proclaimed that she needed the administrator to demonstrate "excitement and knowing" in order to influence her to make pedagogical changes; Participant 3 similarly wanted "excitement and enthusiasm" from the school leader; and Participant 5 also sought "support from administration, and encouragement." Using more unique language than the other teachers, Participant 42 stated that "servant leadership" was what he looked for in an administrator; he noted that he is willing to make changes in his teaching practices if he

knows the administration is "with" the teachers and supportive of their best interests, if they are all in it together. Another example was seen in Participant 25's ranking of Statement 2 as a most preferred statement, indicating that he felt effective professional development "requires the principal to actively encourage teachers to collaborate and support each other." With regard to administrators' enthusiasm, support, and leadership, then, the current study's findings were consistent with the literature on professional development.

According to the research literature reviewed in Chapter 2, effective professional development must include structures within the school to support changes in teachers' pedagogical practices. Elmore et al. (1996) noted that "many of the changes in teaching practice that reformers want to achieve would seem to imply significant structural change in schools" (p. 214). In other words, the school staff must have support structures, processes and procedure in place that assist in creating a culture where teachers work together around instructional issues, while at the same time keeping the focus on students. Principals and teachers must both be involved and understand the need to create an instructional mission, vision, and a set of goals that would meet the specific teaching and learning needs of the staff.

Concurring with these researchers' claims, the teachers in the current study also believed administrators should provide an environment which offers structures and support for implementing excellent professional development. Participant 19, for example, reported searching for administrators that give teachers support with established structures, such as time to collaborate provided by a structure or a specific meeting space where teachers can have professional conversations around implementing new ideas and techniques learned in

professional development sessions. Likewise, Participant 33 was influenced to make changes to teaching practices by administrators "providing…time" to work with the new information and training. Speaking more generally about the importance of structure, Participant 19 marked effective professional development as being "aligned to the school's mission, vision, and values," indicating that a strong structure of cultural norms around how teachers "do business" and why they "come to work" is necessary for successful professional development. Hence, the current study's findings were consistent with research literature in that the teacher participants endorsed the idea of a structured, supportive environment for the best in professional development.

Notably, as discussed in Chapter 2, researchers have noted one recurring problem with professional development efforts: the failure on the part of the school to provide adequate support structures such as collaborative planning time, mentors and coaches, quality training, and other required resources for the teachers (Darling-Hammond, 2010; Guskey, 2000). Likewise, the current study found that most teachers agreed with those assertions in the literature. Teacher participants in the study wanted structures to be put in place that provided time for them to share their craft, including support from outside the school that could provide necessary resources and outside perspectives. In addition, the participants in the study wanted to work in schools that encouraged teachers to redesign their teaching in order to support a multitude of diverse learners, but did not always require them to do "one type" of teaching. They sought to work in an environment that promotes and tests new ideas that may seem difficult or threatening, and requires the principal to support risk-taking with regard to planning and implementation of new instructional initiatives.

Collaboration between teachers and their peers was another element found to be very important to the teachers in the current study, a finding that is markedly consistent with the literature. Hawley and Valli (1999), for example, cited collaboration as one of the required components for building and maintaining an effective learning staff for professional development. Collaborative problem solving "breaks down teacher isolation, collectively empowers teachers, creates an environment of professional respect, and develops a shared language and understanding of good practice. Without collaborative problem solving, individual change may be possible, but school change is not" (Hawley & Valli, 1999, p.141). Likewise, Participant 14 perceived it to be important for teachers to collaborate and work in an environment that supports "openness to change," including extensive reflection about beliefs, practices, and ways of working with others, as well as opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students. Participant 16 agreed, writing, "Constant reflection is required for growth." Participant 23 endorsed collaboration strongly, stating, "Professional development must aim to have both teachers and students learn more. Collaboration is very powerful. Collaboration and discussion with other teachers continues to play the biggest role in my growth as a teacher." Participant 25 claimed effective professional development requires a strong structure of "teamwork amongst all staff," and Participant 3 similarly believed having "peer coaches" was an important aspect of professional development.

Some teachers in the current study addressed collaboration with regard to the importance of having the structures and time to engage with peers at school. Participant 5 asserted that "time for teachers to collaborate has to be built into the day, and teachers have

to be willing to collaborate" in order for professional development to be effective. Participant 27 maintained that professional development requires reflection time and must be a part of the normal school culture, saying, "Collaboration among teachers is effective and we rarely get that chance during the school day." Even more than a cultural norm that must permeate the school, Participant 27 also viewed professional development as ongoing and noted teaching always has areas that can be improved upon. Finally, Participant 30 believed structures needed to be in place in school for "sharing best practices with the entire school, not just between departments."

Still, while several teachers reported believing collaboration is an important aspect of professional development, some did not feel that it is necessary all the time and did not value "forced" collaboration. For example, Participant 17 struggled with how much collaboration was important for the success of professional development, stating, "Effective professional development requires teachers to collaborate," but "sometimes it does not." In other words, she suggested that the amount of collaboration required depends on the individual needs of the teachers and the breadth and depth of the training itself.

Findings Inconsistent with the Literature

The teacher participants in the current study also cited several elements of professional development that they did not perceive as effective, and which were contrary to the findings of the literature reviewed in Chapter 2. For example, researchers have asserted that principals are uniquely positioned in schools to support the learning of both teachers and students, as principals are empowered to make sweeping changes in schools to improve the

overall school performance. Moreover, strong instructional leadership by the principal using high-quality professional development has been noted as one of the most important tools to help teachers become more effective, refine skills they have learned, and develop new skills (Wood & Lease, 1987). Differing somewhat from these claims, the teachers participating in the current study believed administrators should support professional development, but should not necessarily be the one presenting it or directing it, or even always be in attendance.

Teachers in this study welcomed administrative support for providing resources and structures to enable teachers to work together and to voice their input on professional development topics. However, they did not believe the principal had to direct the professional development, but only needed to provide opportunities for teachers to have the training. Participant 9 declared:

> I don't think administration needs to be the facilitator to have well-run professional development. I think it is better when others take on a leadership role… I am more likely to use [professional development] in my classroom if I hear from a teacher who is currently using it rather than my principal telling me to do it.

Comparably, teacher Participant 15 said, "Professional development does not have to involve the administration." Participant 21 went further to note, "I do not think that the administration can effectively make decisions about or guide the professional development of content specific teaching," but she did indicate that she would incorporate any new strategy or practice required by the principal into her teaching.

The use of data in professional development was revealed as important in the literature review. Darling-Hammond (2010) asserted that quality teacher training offers a real and genuine focus on student learning, helping teachers to analyze and understand the skills students are expected to know and do, because teachers should know if what they are doing is making a difference to them, their school, and the learning of their students. On the other hand, some researchers have pointed to the way that data can fail to be useful. Militello et al. (2009) found it difficult to connect the outcomes of professional development to student outcomes. Sykes wrote, "the causal chain that connects an in-service intervention to effects on teacher thinking and instructional practices, in turn yielding effects on student learning, is complex and hard to establish" (p. 169). Likewise, teachers in the current study perceived data collection and analysis to be useful, but not the deciding factor, for choosing professional development topics. For example, Participant 22 wrote:

> I think most teachers are constantly reflecting on and evaluating the effectiveness of their instruction. To me, the purpose of staff development is not looking at data but finding new and innovative ways to work with students. Too much emphasis is put on data analysis and not enough opportunities (are provided) to seek staff development outside of (what) the school/district has provided.

Along the same lines, Participant 5 indicated that "data helps" but should not be the deciding factor when planning professional development. Participant 6 wrote, "Data can be misused and create a poor environment to teach," and also noted that she was more driven to use professional development based on her students' needs and teaching results than based on

any kind of data. Participant 32 agreed, maintaining, “Data is great, but training based on that alone is not comprehensive.”

Teachers participating in the current study also indicated that data can be misused at times, often placing statements dealing with data and assessment on the “least preferred” side of the Q-Sort distribution grid. Statement 19, which read, “Effective professional development uses multiple data sources to measure teacher and student performance and learning,” and Statement 26, “Effective professional development is driven by the analyses of the differences between goals and standards for student learning and student performance,” appeared on the “least preferred” side of the Model Q-Sort 3 out of 4 times. For instance, Participant 12 placed Statement 19 in the least preferred column of the Q-Sort, and in the Post-Sort Questionnaire she wrote that the statement was unimportant to her because it “focuses on data driven instruction, more on abstract goals/standards than on concrete outcomes.” After placing Statement 26 in the least preferred column of the Q-Sort, Participant 2 also wrote in the Post-Sort Questionnaire, “Data does not analyze student learning within the environment. There is more to learning than a test.” Participant 23 also placed Statement 26 in the “least preferred” column of the Q-Sort, going on to claim, “[Teachers] are already required to analyze differences in goals and outcomes. It never seems to bear much fruit.” Overall, then, the teachers in the current study did not indicate that data was as important to them as did the research literature on data in professional development.

Table 5.1 below summarizes the major important themes in professional development as identified in the literature review of Chapter 2. In addition, the table provides factor and

individual participant evidence from the current study that either supported or did not support the findings from the research literature.

Table 5.1: Professional Development Themes from Lit. Review, Evidence Summary

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
ANALYSES OF THE DIFFERENCE BETWEEN GOALS AND STUDENT PERFORMANCE AND EVALUATION OF MULTIPLE SOURCES: Although using multiples sources of data and evaluating both student learning and the impact of PD on the student learning is important in the literature and research, participants in this study did not rank the analyses of PD and student performance connected to the PD as a most preferred statement.	Statement 26, "Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance," was ranked very low by participants in groups for Factor 1, 2, and 3, ranking it at -3, -4, and -2, respectively, in the Model Sort. The Factor 4 group moderately agreed with this statement, ranking it +2 in the Model Sort. Statement 19, "Effective PD uses multiple data sources to measure teacher and student performance and learning," was generally ranked "least prefer" by participants in the groups for Factor 1, 2, and 3, ranking it in the Model Sort at -1, -1, and -3, respectively. The Factor 4 group moderately agreed with this statement, ranking it +2 in the Model Sort.	Participant 2:"Data means nothing. Data does not analyze students' learning within the environment and there is more to learning than a test." Participant 6: "Data can be misused and create a poor environment to teach." Participant 22: "I think most teachers are constantly reflecting on and evaluating the effectiveness of their instruction; I know I am. To me, the purpose of staff development is not looking at data but finding new and innovative ways to work with students." Participant 22 also said: "A lot of the times, our professional development it seems to be whatever is the newest hottest topic of the time and 'let's just jump on that bandwagon' even when there are some tried and true practices that work." Participant 27 had difficulty with statements about data, stating, "so often we rely on only one indicator/data source to determine what professional development we should focus on."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
		Participant 30: "Data is great, but training based on that alone is not comprehensive."
FOCUS ON STUDENT AND TEACHER LEARNING: Generally, the participants in each factor group moderately agreed that high-quality PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate.	The factor groups ranked Statement 8, "Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate," as 1, 3, 2, and 2, respectively, in the Model Sorts. The Factor 1 group ranked Statement 1l, "Effective PD provides learning opportunities that reflect the individual needs of teachers," as their most preferred statement, at +4 in the Model Sort. The Factor 1 group also ranked Statement 13, "Effective PD offers both individual and school-wide choice with regard to topics that are offered," as their most preferred statement, at +4 in the Model Sort. The Factor 1 group ranked Statement 14, "In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered," as a highly preferred statement, at +3 in the Model Sort.	Participant 8 said, "Teachers are in the classroom" and so professional development should be "teacher-led." Participant 10 felt that Statements 8 and 24 were the easiest to place because they focused on student learning. She sought professional development that "teaches us how to involve students more effectively." Participant 10 also said, in the post-sort interview: "[Effective professional development] gives me alternatives that I can use with the diverse learners. It teaches me how to teach as many kids as possible in the most effective manner. Good professional development teaches me how to reach as many kids as possible and not leave anybody, any interest out, any talents out. I have had some professional development classes that have really taught me how to get the kids to read for information specifics and I changed because they gave me some skills that I didn't have to get kids to read and use language…"

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	The Factor 1 group ranked Statement 25, "Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject," at +3 in the Model Sort. The Factor 1 group ranked Statement 34, "Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs," as a +3 in the Model Sort. The Factor 2 group placed Statement 24, "Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school," as their most preferred statement, ranking it +4 in the Model Sort. Factor 1 group participants' written and verbal statements contained language like: reflect the individual needs, offers individual choice, seeks input from teachers, and provide learning opportunities that relate to individual teacher needs. Factor 1 group participants sought out professional development meeting the individual needs of teachers, their classes, and specific subjects.	Participant 13: "Professional development is for teachers, not administrators." Participant 15: "A school should focus professional development on teachers and what teachers need." Participant 15 also said, "I believe professional development can cover almost any topic teachers see as an issue/concern," adding that the "principal and assistant principal should enable professional development, not dictate [it]." Furthermore, he believed the administration in a school should focus professional development on teachers and what teachers need, not what the administration wants or expects. Participant 21: "I firmly believe that professional development should be teacher-led and content-specific." Participant 24 noted that "providing professional development that I actually need," is what influences her most to make changes in her teaching practices. Participant 24: "Teachers need more input into professional development choices."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Factor 2 group participants valued student and teacher learning, and believed in continuous improvement for both themselves and their students.	Participant 32 said that seeing "something that matches my content and will engage my students to learn a skill" was a critical piece influencing her to adapt her pedagogy. Participant 33: "Teacher learning and student learning go hand in hand." Participant 37 noted that "individual needs (of teachers) need to be met," and that a "one-size-fits-all" type of professional development was not appropriate.
SCHOOL-BASED AND JOB-EMBEDDED: Generally, the participants in this study ranked statements dealing with job-embedded professional development as preferred.	Factors 1, 3, and 4 group participants ranked Statement 14, "In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered," at +3, +4, and +4, respectively, in the Model Sorts. The Factor 3 group placed Statement 9, "Effective PD that is integral to student and teacher learning is school-based, meaning the staff routinely plans and presents training sessions that allow teachers to share best practices," as their most preferred statement, ranking it +4 in the Model Sort.	Participant 21: "I don't think that the administration can effectively make decisions about or guide the professional development of content specific teaching. I firmly believe that professional development should be teacher led and content specific." Participant 37: "stimulating and provide examples specific to my content."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Factor 2 group participants' verbal and written statements contained language like: improving teaching, learning, and the overall academic performance of students; training the teacher to engage and prepare students; student learning; helping teachers to understand the knowledge and skills students are expected to know and demonstrate; learning outcomes of the teacher; and how the teacher can best provide for the learning of students.	
COLLABORATIVE: Participants in this study ranked collaboration, working with and learning from other teachers, as an important element of professional development.	Factor 3 group participants ranked Statement 9, "Effective PD that is integral to student and teacher learning is school-based; meaning the staff routinely plans and presents training sessions that allow teachers to share best practices," as a most preferred statement, at +4 in the Model Sort. Factor 3 group participants ranked Statement 1, "Effective PD requires teachers to collaborate," as a preferred statement, at +3 in the Model Sort. Both Factor 3 and Factor 4 group participants ranked Statement 4, "Effective PD requires structures to be put in place that provides time for teachers to collaborate," high on the Model Sort, as a +3 and +4, respectively.	Participant 5: "Time for teachers to collaborate has to be built into the day and teachers have to be willing to collaborate." Participant 9: "I am more likely to use [professional development] in my classroom if I hear from a teacher who is currently using it." Participant 8 noted, "Teachers are in the classroom," and felt that, professional development should therefore be "teacher-led." Participant 23: "Collaboration is very powerful. Professional development should include ample opportunities to collaborate and create concrete, practical products for the classroom. Discussion with other teachers continues to play the biggest role in my growth as a teacher."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Factors 1, 3, and 4 group participants ranked Statement 14, "In schools with effective PD, the school leader seeks input from teachers before making decisions with regard to the training that is to be offered," at +3, +4, and +4, respectively, in the Model Sort. The Factor 2 and Factor 4 groups both ranked Statement 22, "Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students," at +3 in the Model Sort. Factor 3 group participants' written and verbal statements contained language like: school leader seeks input from teachers before making decisions; training sessions that allow teachers to share best practices; requires teachers to collaborate; and provides time for teachers to collaborate. Factor 4 group participants' written and verbal statements contained language like: structure that provides time to collaborate, and seeks input from others.	Participant 27: "Professional development needs reflection time and must be a part of the normal school culture. Collaboration among teachers is effective, and we rarely get that chance during the normal school day." Participant 30 felt that "sharing best practices with the entire school, not just between departments" was an important element of collaboration with regard to professional development. Participant 33: "Just as we want students to collaborate to obtain 21st century skills – we should do the same." Participant 42: "There has to be lots of safe collaboration."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
CONTINUOUS AND ONGOING: Generally, participants in this study ranked statements dealing with long-term and continuous professional development as preferred.	The Factor 2 and Factor 3 groups ranked Statement 6, "Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished," as important, at +3 in the Model Sort. Participants in all four factor groups did not strongly prefer Statement 17, "Effective PD is long-term, sustained, and content focused," as it ranked at -1, 0, -2, and -3, respectively, in the Model Sort. Factor 2 group participants ranked Statement 24, "Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school, as the most preferred statement in the Model Sort. Factor Group 3 participants' written and verbal statements contained language like: culture of continuous improvement, and learning about best practices is ongoing and never finished. Factor 4 group participants valued supportive structures that allow them to have a voice in their professional development needs, and working in an environment where they feel safe trying new approaches.	Participant 20: "Teachers who know their content well and are also innovative, engaging teachers should be the instructional leaders in the school. Even if you are a math teacher, you can also have teaching 'tips' for a variety of content areas." Participant 26 believed processes should be in place to include teacher input in the professional development decision making for the school. Participant 27: "Learning is ongoing and never finished." Participant 28 felt like professional development did not always have to be connected to a more global vision for the school but, instead, should focus on constantly improving teaching.

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
PART OF A COMPREHENSIVE CHANGE PROCESS: While important to school improvement, participants did not rank comprehensive change as necessarily being an effective element of professional development.	The Factor 4 group ranked Statement 5, "Effective PD is aligned to the school's mission, vision, and values," at +3 in the Model Sort. The Factor 2 group ranked Statement 24, "Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school," at +4 in the Model Sort. The Factor 2 and Factor 3 groups ranked Statement 6, "Effective PD helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished," at +3 in the Model Sort. None of the factor groups placed Statement 20, "Effective PD requires extensive reflection about beliefs, practices, and ways of working with others," as highly preferred. The Factors 1 through 4 groups ranked it at 0, -1, -3, and 0, respectively. None of the factor groups preferred Statement 33, "Effective PD is part of a 'grand plan' facilitated by school leaders that is implemented in small and incremental chunks." It was ranked by the Factors 1 to 4 groups at 0, -2, -1, and -1, respectively.	Participant 17 preferred professional development that is aligned to school goals and is school-based but had difficulty with Statements 5 and 9. Participant 17: "Professional development that is school-based is best. Professional development does not always have to be outsourced and not necessarily part of a 'grand plan' in the school." Participant 25 indicated that Statement 15, "aligning professional development with the beliefs of staff members," was difficult to place, noting that "it seems like it would be difficult for a large school to effectively implement."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Factor 4 group participants' verbal and written statements contained language like: structure that provides time to collaborate; seeks input; aligned to the school's mission, vision, and values; provides opportunities for teachers; and create and support an environment of risk-taking. The Factors 1 through 4 group participants ranked consistently Statement 20, "Effective PD requires extensive reflection about beliefs, practices, and ways of working with others," at 0, -1, -3, and 0, respectively, in the "least prefer" area of the distribution grid.	
SCHOOL LEADERSHIP: Literature suggested that the school leadership, the principal, was important to guiding and shaping effective professional development. However, participants in the current study tended to disagree.	Factors 1, 2, 3, and 4 group participants ranked Statement 28 "Effective PD requires the principal to be familiar with learning (teacher pedagogy and student curriculum), at 0, 0, 1, and 0, respectively, in the Model Sort. Factors 1, 2, 3, and 4 group participants ranked Statement 29, "Effective PD requires a principal that guides instructional change," at -4, -3, -2, and 0, respectively, in the Model Sort.	Participant 3 had difficulty with statements about the principal, saying, "The principal guides instructional change, but it should be the teachers too." Participant 7 indicated that she had trouble sorting statements that had to do with the importance of the principal's role. Participant 10: "Administrators do not need to be present for professional development, but they should support teachers."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Factors 1, 2, 3, and 4 group participants ranked Statement 31, "In schools with effective PD, the principal spends time speaking formally and informally with teachers about instructional practices, offering support and seeking advice about instructional matters," at -1, -2, -2, and -2, respectively, in the Model Sort. Factors 1, 2, 3, and 4 group participants ranked Statement 35, "Effective PD within a school requires the attendance of school administration at the trainings and workshops," at -4, -2, -1 and -2, respectively, in the Model Sort. The Factor 2 group ranked Statement 29, "Effective PD requires a principal that guides instructional change," at -3 in the Model Sort. The Factor 2 group also placed Statement 30, "Effective PD requires the principal to create and support an environment of risk-taking with regard to planning and implementation of instructional initiatives," at -3 in the Model Sort.	Participant 18: "I don't feel I need to be micromanaged by an administrator or outside consultant to improve my practice." Participant 21: "I don't think that the administration can effectively make decisions about or guide the professional development of content specific teaching." Participant 23 had difficulty with statements that pertained to the role of the principal, because she "was not sure of their value in determining professional development needs and implementation." Participant 28: "The admin should be strongly included, although teachers should guide and choose professional development." Participant 34 stated that she had difficulty placing statements that pertained to the role of the principal, as she was unsure if the principal should always be the one to direct or lead professional development. Participant 34 also stated, "I don't think that administration have to be at all professional development sessions to be effective. Some of my most effective meetings involve only my professional learning team."

**PD= Professional Development*

Table 5.1 (continued)

Essential Elements of Professional Development in Literature	Supporting Evidence within Factors (per Table 4.6, Statements and Factor Placements)	Supporting Evidence from Individual Participants
	Teacher participants in the study did not indicate a high preference for the principal spending time speaking formally and informally with them about instructional practices to offer support and seek advice about instructional matters. Additionally, teachers in the study neither indicated a strong preference for the principal to act as the instructional specialist at the school. Instead, teachers want support and resources from the principal, but do not necessarily expect that person to be the one who prepares, delivers, and understands all the professional development.	

**PD= Professional Development*

Gary Sykes' Framework and Professional Development

In the current study, Gary Sykes' model of professional development was used to highlight and underscore the perceptions of professional development of teachers, in order to examine if teachers' perceptions about effective professional development mirrored his findings and were aligned to his prescriptive model. Sykes' (1999) work suggests that teachers must be working practitioners who contribute to the body of knowledge used to improve their skill sets. As a reminder, Sykes lists five components of an effective teacher professional development framework for use in school, including:

1. Use the teacher-student learning connection as a criterion for the selection and design of teacher professional development
2. Embed teacher professional development in the specific content of the student curriculum
3. Integrate examination of student learning, using multiple sources of evidence into teacher professional development
4. Include attention to student learning in teacher professional development associated with the implementation of curricular and instructional innovations
5. Reference both formative and summative evaluation of teacher professional development to student learning

Teacher-Student Learning Connection

According to Sykes (1999), the teacher-student learning connection should serve as a "criterion for selection of professional and school development activity" (p. 161). In other words, most often, staff development should be designed with student learning as the prime benefactor, and there must be a direct link "between the learning opportunities provided to teachers and the eventual learning of students" (p. 162). This researcher wanted to know if teachers also perceived professional development involving the stakeholders in the identification of what they need to learn and, when possible, in the development of the learning opportunities and processes, as an effective model to follow. Do teachers prefer to be provided learning opportunities connected with their curriculum and the students they teach? Do they prefer to plan and evaluate professional development in terms of potential impact on student learning?

From the current study, it became clear that teachers prefer professional development which is: directly linked to their subject, easily transferrable to classroom pedagogy, and connected to student learning. Moreover, specific factors connected with this very idea emerged from the study. The strongest, Factor 1, dealt with wanting professional development that meets the individual learning needs of teachers. Participant 37 said she prefers professional development that is stimulating and provides specific examples to her content, and she was not an advocate for training all staff members on the same topics all of the time. She also felt that administrators should encourage individual teachers to seek training based on specific reviews and observations of what was taking place in each teacher's classroom with regard to pedagogy and student learning. Comparably, Participant 22 remarked:

> It is about choice, it is about what you feel is needed in your classroom. A lot of the times our professional development it seems to be whatever is the newest, hottest topic of the time, and 'let's just jump on that bandwagon' even when there are some tried and true practices that work.

Thus, participants in the current study agreed with Sykes, revealing that professional development should be relevant to the very specific needs of the teacher and his/her classroom of students.

Sykes (1999) maintained that, when planning professional development, one must "develop in as much detail as possible a set of working hypotheses about how the particular learning opportunities to be supplied to teachers will come eventually to influence student learning" (p. 162). Likewise, teacher Participant 38 said, "I know my students," and searches

for professional development that is "practical to my subject" and will provide "the resources to implement it" and help improve the overall learning of students. Participant 38 also agreed that evaluating teachers was important, and using that information to plan professional development was equally imperative. Still, she noted that it "may not happen with the 11-12 page teacher evaluation rubric" now in place for teachers in North Carolina.

The "critical exercise" in Sykes' (1999) model is to rigorously search for the "causal reasoning that leads from interventions in teacher learning to effects on student learning" (p.162). Participant 36 claimed, "Professional development is usually [about] whatever the latest buzz is in education, and is politically motivated by non-educators." She maintained, "Teachers know what they need in their classrooms better than anyone. They are less likely to resist if they are allowed to choose professional development," and added that "learning of students is the goal" when providing teachers with continued educational opportunities. Notably, this teacher also placed Statement 21, "Effective PD focuses on the learning outcomes of the teacher and how the teacher can best provide for the learning of students," as her most preferred statement in the Q-Sort.

Speaking to the disparity between how students and teachers are often taught, Participant 32 made a very good point by writing, "Individualized instruction – we require it from our teachers, but we don't provide it for them." In essence, she pointed to the fact that we expect individualized instruction and data-gathering for teaching students, but we do not demonstrate that same belief for teachers when planning and providing their professional development. Indeed, teachers should be assessed prior to planning professional development, because administrators must know the strengths and weaknesses of teachers in

a school before going about planning and providing staff learning opportunities. Then, professional development must be planned and monitored to evaluate the training's impact on teaching practices and student learning.

An important distinction that Sykes (1999) made was in noting that, when planning and providing professional development, there is often an "argument" between deciding on several topics, all of which may impact student learning. He writes,

> District staff developers might face a choice between investing in workshops around the adoption of a new mathematics text series or a systematic training program that introduces the precepts of the Reading Recovery Program to regular classroom teachers. Each Teacher Professional Development activity arguably relates to the enhancement of student learning, so that a choice between them (or a phased combination of them) is not obvious. (Sykes, 1999, p. 162)

Teachers in the study like Participant 28 agreed with Sykes, saying, "Information about what works and new ideas about things that matter in the classroom" are worth talking about when searching for professional development with the potential to influence teachers to change their teaching practices. This teacher appreciated the effort of administrators to "provide meaningful strategies, ones that reach into the classroom with specific ideas, activities, [and] approaches" that impact student learning.

Overall, teachers participating in the current study preferred professional development that was chosen based on demonstrated classroom need and teacher-specific input. Arguably, then, using these two criteria, schools could provide professional development that would most significantly impact student learning.

Embed PD in the Specific Content of the Student Curriculum

Sykes (1999) has said that we must embed teacher training within the specific content of student curriculum. Teachers need multiple opportunities to work directly with the student curriculum they are expected to teach, the curriculum is often dense, and teachers are not always completely familiar with the content. Sykes (1999) identifies three, closely related ways for teachers to work with the curriculum: (1) Teachers need to deepen their own understanding of the subject matter and skills-related content; (2) Teachers need to deepen the various ways of representing and conveying that content instruction (frequently referred to as pedagogical knowledge or understanding of content); and (3) Teachers need to deepen their understanding of how students learn the content (p. 163). These three elements are the heart of a professional development model – the subject matter, the teaching, and the learning. That is, using the material within a subject as the basis for professional development aimed at improving the teaching and learning of that subject matter is the most critical characteristic to consider when planning professional development activities. The question is: Do teachers perceive this idea to be equally important?

Understanding teacher and student learning, and improving both, emerged as an important factor in the current study. Sykes (1999) maintained that the idea is simple: "Many teachers need greater opportunities to work directly with the content of the student curriculum" (p. 163). To instruct students effectively, teachers need to understand the content, the various ways to present the content, and how students learn the content. Participant 7 clearly indicated that she believed professional development should "focus on content and how to teach that content effectively for students." In addition, Participant 10

suggested that student learning should be the focus of professional development, and that it should teach teachers how to involve students more effectively.

In fact, numerous teachers participating in the study were in agreement on the matter, indicated by the fact that they ranked statements that focused on student learning and achievement as their most preferred statements. Participant 12, when asked about the statements placed in the "Most Prefer" column of the sort, replied, "This type of professional development strengthens teacher knowledge on how to teach their content most effectively and [to me] would have the most beneficial impact on student learning and engagement." Participant 33 agreed, stating, "Teacher learning and student learning go hand-in-hand." Additionally, Participant 10 concurred with the importance of understanding the learning needs of students, remarking that effective professional development:

> gives me alternatives that I can use with the diverse learners. It teaches me how to teach as many kids as possible in the most effective manner. Good professional development teaches me how to reach as many kids as possible and not leave anybody, any interest out, any talents out.

Hence, the idea of relating professional development to teachers' specific subjects and course content was important to teachers in the current study, just as Sykes suggested.

Collaboration

Collaboration, or time to work, study, and engage in conversations about teaching and learning, was another aspect of professional development that many teachers in the study perceived to be vitally important. Even more, agreeing with Sykes, they understood that knowledge related to the teaching and learning of subject matters was most critical to

improving student achievement, because teachers and students need time to wrestle with the specifics of their curriculum. For instance, Participant 19 looked for professional development that was engaging, and also wanted time to collaborate with other teachers. She noted that she was willing to "buy into" professional development if she could find meaning in it for both herself and her students. Not only was it important to teachers in the study to ground professional development in students' curricula, but also to have the time needed for teachers to reinforce and discuss teaching practices. Participant 23 similarly wrote, "Collaboration is very powerful," and went on to claim that the goal of professional development must be to improve the learning of both teachers and students, asserting, "Professional development should include ample opportunities to collaborate and create concrete, practical products for the classroom." She further indicated that collaboration helped teachers expand their understanding and knowledge, and admitted that "discussion with other teachers continues to play the biggest role in my growth as a teacher."

Notably, Blase and Blase (2000) agreed, pointing out that effective professional development encourages teachers to become peer coaches and support each other. Along these lines, Participant 27 said:

> Learning is ongoing and never finished. I think we are constantly needing to reflect on what we have learned and how we can incorporate it into our classrooms and make it work for us. It is not necessarily what they gave us, but how can we change it or alter it to work for us. I think you constantly have to do that, because with different classes of kids different things work. Collaboration among teachers is effective, and we rarely get that chance during the normal school day. Gaining insight by

> collaborating with my peers, encouragement, and support from other teachers and school leadership [is important].

Like Sykes, then, participants in this study valued collaboration, understanding that the exchange of ideas and the sharing of tangible work examples are invaluable links that will lead to improved student academic achievement.

Integrate the Examination of Student Learning using Multiple Sources of Evidence

There is often very thin feedback provided to teachers about student learning, and the feedback they do get usually comes by the way of using traditional, summative, multiple choice assessments. According to Sykes (1999), teachers have to be engaged in "designing authentic assessment tasks that purport to measure ambitious learning outcomes, creating scoring rubrics, evaluating student work samples contained in portfolios, and implementing assessment practices that feature public demonstrations and collectively developed standards for evaluation" (p. 166). If teachers are trained and engaged in all aspects of student assessment, including design, administration, and scoring, it may promote professional learning on the part of the teacher related to student learning. Teachers will have to know their content, understand how to teach it, quantify how students learn it, and demonstrate that they have learned it by creating assessments to measure the outcome of student learning. In other words, teachers do not have to rely on outside measures to define student achievement if they understand the material they are being asked to teach and how to assess if the students have learned it. In the Q-Sort for the current study, there were a couple of statements about the use of data and how data should be used when planning professional development.

Sykes (1999) has maintained that traditional testing in the United States only provides relatively thin feedback to teachers. Likewise, overall, specific, standardized data collection did not emerge as a factor most important to teachers when planning and implementing professional development practices. While many teachers did perceive data collection as important and necessary, they more often preferred using their own professional opinions and classroom evidence to gauge student learning based on their teaching, rather than by a sole reliance on standardized data. Participant 18 reported using data collected in her classroom to determine if she will continue using new ideas obtained from professional development with her students, and Participant 30 admitted that, though data is useful, it alone is not comprehensive enough to base training upon. Thus, the teachers in the current study, who felt that multiple methods of assessment should be used, concurred with Sykes.

In his work, Sykes (1999) has suggested that the use of data should be two-fold. First, maintaining and keeping both formative and summative data in various forms assembled over time are important and, second, the assessments can then serve as explicit points of reference in the design, implementation, and evaluation of professional development activities. Specifically, Sykes (1999) asserted that qualitative records by teachers are important means to determining student performance. That is, it is important to base the assessment of learning on narratives of classroom work, observation of student behavior in class, informal interviews with students, and related evidence assembled over long periods of time. Several teachers in this study felt that single sources of data could be manipulated and that, in agreement with Sykes, multiple sources should be used. Aligning with Sykes, teachers in this study generally agreed that data was important and that professional

development practices, when used, should increase student achievement or be reevaluated. They did not believe that data analysis should be the only tool used to evaluate and plan for professional development.

Participant 2 said, "Data does not analyze students' learning within the environment and there is more to learning than a test." Participant 6 stated, "Data can be misused and create a poor environment to teach." In addition, Participant 27 acknowledged that she had difficulty with statements about data, because "so often we rely on only one indicator or data source to determine what professional development we should focus on." She also cautioned that professional development chosen based on one indicator or source of data does not look at the entire picture or capture all the needs of teachers. Participant 30 perhaps summed it up best in noting, "Data is great, but training based on that alone is not comprehensive."

Attend to Student Learning Associated with the Implementation of New Innovations

Sykes (1999) declared that teacher training with new initiatives must "build more attention to the effects on student learning as a means both to improve the process and test the program or innovation itself" (p. 168). Such a structure or process of monitoring the effects on learning could include small scale experiments or action research "where teachers formally test samples of students using curriculum-specific assessments, design and administer new assessments based on the new program's learning objectives, [and] conduct clinical interviews with selected students to explore qualitative dimensions of their learning" (Sykes, 1999, p. 168). Training teachers to assess students in this way requires the expected outcome to be clearly identified and, moreover, demands that schools engage in fewer innovations or new practices over longer periods of time. Several statements in the Q-Sort for

the current study dealt with the monitoring of professional development over time, and the characteristic environment needed in order for teachers to feel comfortable trying new approaches and making mistakes.

Providing supportive structures for professional development in an environment that supports risk-taking was important to participants in the current study; for them, a certain amount of risk-taking and an encouraging environment must be present for professional development to be effective, or else it is generally more difficult for the staff to try new ideas and approaches. Participant 14 noted that professional development can be an excellent source of growth but sometimes seems to focus on the past, or what they have always been doing, rather than what they should do in the future. Instead, teachers in the study reported wanting to try new approaches, and they must be supported in any new methods attempted. Participant 20 indicated that she placed statements in the "most prefer" continuum of the sort that supported a risk-taking environment being provided by the school administration. Comparably, Participant 25 believed an environment that encouraged, supported teamwork was most important for professional development to succeed.

Without question, there must be structures in place that allow teachers to work and develop their individual content areas. According to Hirsh (2005), the school leadership has to create strong structures for teachers that will allow them to help their colleagues, with "regular times during the school day for teachers to meet and examine student work, evaluate it against standards, and determine strategies for getting better results" (p. 40). Blase and Blase (2000), in agreement with Sykes, added that the structures of support should be ongoing and sustained with small incremental steps. Concurring with these researchers,

Participant 20 suggested that working with other teachers over time can increase her capacity, especially with innovative ideas, and help her implement and evaluate effective professional development. However, she also noted that peer coaching is not always required:

> I feel strongly about peer coaching….Teachers who know their content well and are also innovative, engaging teachers, should be the instructional leaders in the school. Even if you are a math teacher you can also have teaching "tips" for a variety of content areas.

This teacher also indicated that having the opportunity or structure in place to observe professional development used by others, like another teacher, would make her more apt to "buy in" to the training. Thus, as Darling-Hammond (2010) noted, professional development is the most important work teachers do in schools, and it should help teachers to analyze the skills and understandings students are expected to know and do. However, teachers can only analyze the skills and understandings provided by professional development, and its impact on student learning, when a system and structure exists in the school that allows them to do so.

Reference Formative and Summative Evaluation of PD to Student Learning

Sykes (1999) wrote, "The causal chain that connects an in-service intervention to effects on teacher thinking and instructional practice, in turn yielding effects on student learning, is complex and hard to establish" (p. 169). Furthermore, according to Sykes (1999), "Teachers have a stake in defining the professional knowledge that underlies effective practice and so should participate in processes of creating such knowledge as one aspect of

the meaning of teacher professionalism" (p. 170). But, typical professional development in schools today is a list of multiple topics, offered in rapid succession, with varying priorities and scantly concrete outcomes. So, what are teachers' perceptions about professional development and its influences on their teaching practices and student learning? What type of environment or collegial support do they need to understand, use, and monitor the effects of professional development?

Teachers in the current study generally supported several broad categories of professional development, as well as the use of accompanying structures and processes that help them implement and evaluate the use of the professional development on teacher and student performance in the classroom. Sykes' (1999) model requires that student learning be part of the professional development equation. He writes, "Too often, the training that accompanies implementation [of professional development] makes little or no reference to what students learn" (p. 168). Citing the 1998 work of Fashola and Slavin, he further noted that "Relatively few school-wide innovations have been validated on the basis of their impact on student learning" (p. 158). In addition to student learning, though, it seems quite probable that the impact on teacher learning is also vitally important, and something to consider, when evaluating professional development.

There are many forms the support and evaluative process of professional development could take, according to Sykes (1999), such as:

> [the] use of small scale experiments, where teachers formally test samples of students using curriculum-specific assessments, design and administer new assessments based on the new program's learning objectives, conduct clinical interviews with selected

> students to explore qualitative dimensions of their learning, or engage in action research projects that focus on students. (p. 168)

Participant 7 claimed the best way to facilitate student learning and achievement was by making professional development the centerpiece for improvement in a school. When asked to respond to what influences her to make changes in her teaching, she pointed to a focus on student learning, saying, "Concrete results that lead to student achievement." Achieving learning outcomes and improving student performance and progress, then, were viewed by study participants as markers of effective professional development.

With regard to student learning, Participant 12 named one way to measure effective professional development – by whether or not it influenced teachers to redesign their teaching to support a multitude of diverse learners. She indicated, "[Good] professional development strengthens teacher knowledge on how to teach their content most effectively," and felt it "would have the most beneficial impact on student learning and engagement." For her, evaluating professional development on the merits of its impact on changing teaching practices was important, and so she sought professional development that focuses on diverse learners, student engagement, and content knowledge, while also allowing for the reflection and collaboration that could have a high, positive impact on her as the teacher. Furthermore, she believed teachers must find ways to meet the needs of their students by changing the ways in which they teach.

Generally, a support structure needed for professional development to be successful is a school environment that favors "critical scrutiny of new ideas and practices in terms of their effects on students" (Sykes, 1999, p. 168). Below, Table 5.2 summarizes the framework

established by Gary Sykes as important to planning and providing effective professional development, and the table includes factor and individual participant evidence from the current study that either supports or does not support Sykes' framework.

Table 5.2: Professional Development Framework from Sykes, Evidence Summary

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
STUDENT AND TEACHER LEARNING CONNECTION: Teachers in this study supported the idea that student and teacher learning were important elements of professional development.	The Factor 1 group ranked Statement 11, "Effective PD provides learning opportunities that reflect the individual needs of teachers," at +4 in the Model Sort. The Factor 1 group ranked Statement 13, "Effective PD offers both individual and school-wide choice with regard to topics that are offered," at +4 in the Model Sort. The Factor 1 group ranked Statement 25, "Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject," at +3 in the Model Sort. The Factor 1 group ranked Statement 34, "Effective PD requires the school leadership to provide learning opportunities that relate to individual teacher needs," at +3 in the Model Sort.	Participant 8: "Teachers are in the classroom" and professional development should be, "teacher led." Participant 9: "I am more likely to use it in my classroom if I hear from a teacher who is currently using it." Participant 15: "A school should focus professional development on teachers and what teachers need." Participant 22: "A lot of the times our professional development it seems to be whatever is the newest hottest topic of the time and let's just jump on that bandwagon even when there are some tried and true practices that work." Participant 27: "…learning something that is a little more applicable to what I would be interested in." Participant 33: "Teacher learning and student learning go hand in hand."

**PD= Professional Development*

Table 5.2 (continued)

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
		Participant 37 said that "individual needs [of teachers] need to be met" and that a "one-size-fits-all" type of professional development was not appropriate.
EMBED PROFESSIONAL DEVELOPMENT IN STUDENT CURRICULUM: Participants in the study generally supported the idea of effective professional development focusing on and being imbedded in the student curriculum.	The Factor 2 group ranked Statement 8, "Effective PD focuses on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate," at +3 in the Model Sort. The Factor 2 group ranked Statement 18, "Effective PD focuses on training the teacher to engage and prepare students to apply what they have learned rather than recite what they have memorized," at +4 in the Model Sort. The Factor 2 and Factor 4 groups ranked Statement 22, "Effective PD provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students," at+3 in the Model Sort.	Participant 7 clearly indicated that she believed professional development should "focus on content and how to teach that content effectively for students." Moreover, numerous teachers were in agreement, as they sorted statements that focused on student learning and achievement as their most preferred. Participant 10 suggested that student learning should be the focus of professional development and that it should teach teachers how to involve students more effectively, writing, "Good professional development teaches me how to reach as many kids as possible and not leave anybody, any interest out, any talents out." Participant 12 replied, when asked about the statements placed in the "Most Prefer" column of the sort, "This type of professional development strengthens teacher knowledge on how to teach their content most effectively and (to me) would have the most beneficial impact on student learning and engagement."

**PD= Professional Development*

Table 5.2 (continued)

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
		Participant 21: "I don't think that the administration can effectively make decisions about or guide the professional development of content specific teaching. I firmly believe that professional development should be teacher led and content specific." Participant 33: "Teacher learning and student learning go hand-in-hand."
EXAMINE STUDENT LEARNING USING MULTIPLE DATA SOURCES: Participants in this study did not prefer statements supporting the extensive use of data as a means to examine professional development practices and their impact on student achievement.	The Factors 1, 2, and 3 groups ranked Statement 26, "Effective PD is driven by the analyses of the differences between goals and standards for student learning and student performance," very low in the Model Sort, at -3, -4, and -2, respectively. The Factor 4 group moderately agreed with this statement, ranking it +2 in the Model Sort. The Factors 1, 2, and 3 groups generally ranked Statement 19, "Effective PD uses multiple data sources to measure teacher and student performance and learning," as "least prefer" at -1, -1, and -3, respectively, in the Model Sort. The Factor 4 group moderately agreed with this statement, ranking it +2 in the Model Sort.	Participant 2 placed Statement 26 in the "least prefer" column of the Q-Sort writing, "Data does not analyze student learning within the environment. There is more to learning than a test." Participant 5 indicated that "data helps" but should not be the deciding factor when planning professional development. Participant 6 said, "Data can be misused and create a poor environment to teach," and also indicated being more driven to use professional development based on her student needs and teaching results with her students.

**PD= Professional Development*

Table 5.2 (continued)

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
		Participant 22: "I think most teachers are constantly reflecting on and evaluating the effectiveness of their instruction. To me, the purpose of staff development is not looking at data, but finding new and innovative ways to work with students. Too much emphasis is put on data analysis and not enough opportunities [are provided] to seek staff development outside of [what] the school/district has provided." Participant 23: "[Teachers] are already required to analyze differences in goals and outcomes. It never seems to bear much fruit" Participant 32: "Data is great, but training based on that alone is not comprehensive."
INCLUDE ATTENTION TO STUDENT LEARNING IN PROFESSIONAL DEVELOPMENT: Understanding teacher and student learning and improving both emerged as important factors in this study.	The Factor 1 group ranked Statement 25, "Effective PD requires learning on the part of the teacher about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject," at +3 in the Model Sort. The Factor 2 group ranked Statement 24, "Effective PD is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school," at +4 in the Model Sort.	Participant 10 suggested that student learning should be the focus of professional development and that it should teach teachers how to involve students more effectively, claiming, "Good professional development teaches me how to reach as many kids as possible and not leave anybody, any interest out, any talents out."

**PD= Professional Development*

Table 5.2 (continued)

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
		Participant 12, when asked about the statements placed in the "Most Prefer" column of the sort, replied, "This type of professional development strengthens teacher knowledge on how to teach their content most effectively and (to me) would have the most beneficial impact on student learning and engagement." Participant 14: "Professional development can be an excellent source of growth, but sometimes seems to focus on the past – what they have always been doing – rather than on the future." Participant 33: "Teacher learning and student learning go hand-in-hand."
USE FORMATIVE AND SUMMATIVE EVALUATION OF TEACHER PROFESSIONAL DEVELOPMENT: Participants in this study did not prefer statements supporting the extensive use of data as a means to examine professional development practices and their impact on student achievement.	The Factors 1, 2, and 3 groups generally ranked Statement 19, "Effective PD uses multiple data sources to measure teacher and student performance and learning," as "least prefer," at -1, -1, -3, respectively, in the Model Sort. The Factor 4 group moderately agreed with this statement, ranking it at +2 in the Model Sort.	Participant 5 indicated the "data helps" but should not be the deciding factor when planning professional development. Participant 6: "Data can be misused and create a poor environment to teach." She also said that she was more driven to use professional development based on her students' needs and teaching results.

**PD= Professional Development*

Table 5.2 (continued)

Essential Elements of Professional Development in Sykes Framework	Supporting Evidence within Factors	Supporting Evidence from Individual Participants
		Participant 22: "I think most teachers are constantly reflecting on and evaluating the effectiveness of their instruction; I know I am. To me, the purpose of staff development is not looking at data, but finding new and innovative ways to work with students." Participant 23: "[Teachers] are already required to analyze differences in goals and outcomes. It never seems to bear much fruit." Participant 32: "Data is great, but training based on that alone is not comprehensive."

**PD= Professional Development*

Implications

The following section includes discussions of and suggestions for possible educational policy changes at the school and district levels to better support effective professional development. Additionally, based on information and findings derived from the current study, suggestions for future research and other studies on professional development for teachers are described. Finally, some specific implications of the study for principals and teachers in the public school setting are outlined.

Implications for Policymakers

During the post-sort interviews, study participants discussed how local school policies impact the attention given to the teacher-student learning connection as a criterion for the selection and design of professional development they, as teachers, receive or choose to attend. Overall, these teachers felt that having choices in the kind of professional development they complete would better meet their learning needs. To address these concerns, the following paragraphs outline suggestions for ways that policymakers can improve the professional development and growth of educators.

While best teaching practices can be taught at the district level, the specific professional development required may not meet the individual needs of each teacher in all schools. Teachers are different, teaching varied subjects with assorted styles and, often, the required professional development fails to address the diversity of teachers. Since a limited number of days each school year is specifically designated for professional development, district-level policymakers should review current policies governing professional development in order to determine if the "one-size-fits-all" model is, in fact, beneficial to principals and teachers; moreover, these policymakers should also assess how they could better support schools in planning, implementing, and evaluating professional development provided at the school level.

School funding for professional development should be allocated to each school. While there are district-level training opportunities offered on various topics in most districts, more often than not, the focus is general in scope. Moreover, with limited funding availability, it is easy to understand why it is most cost-effective for school districts to aim

training for teachers on specific, district-initiated programs. However, while teachers want to attend professional development that is targeted toward their specific needs and aligned with the subject material they teach, at the same time, they are concerned that they are frequently required to pay out-of-pocket expenses for training attended outside of their school. As such, even though professional development offered outside of school might better suit their individual needs, they nevertheless cannot afford the cost of attending. Therefore, those same school districts, school boards, and central services staff must also provide funding to individual schools so that the schools can address their own needs, and those of the teachers, at no cost to the teachers.

Providing funding to individual schools should have some guiding parameters that come with the money. Too many programs and methods are introduced into schools with little demonstrated need of the program. Then, once programs are chosen, there is often no means put into place to measure the success or failure of the program and its impact on teacher and student learning. If students perform well or poorly, there is no means to track the cause of the performance outcome, leaving two important questions unanswered – how do we replicate what is working, and how do we know which programs to continue or eliminate without accurate data points?

To address these matters, districts should only provide funding to local schools that are willing to assess and monitor the implemented fidelity of the professional development and its impact on teacher and student performance. In other words, schools must provide evidence that the program or method being considered for training actually targets an identified performance issue within the school. These are two separate issues that both fit

into the conceptual model provided by Gary Sykes (1999): schools must assess the current level of performance in the school prior to planning and providing professional development, and they must also evaluate the learning of teachers and the commitment to instituting the new teaching methods and programs. Furthermore, once a method or program has been appropriately chosen and delivered, the final step should be to measure its impact on student performance.

In order to assist schools in obtaining district funding, policymakers should put guidelines into place to help school administrators choose appropriate teacher professional development. According to Gary Sykes (1999), too often, professional development topics are chosen, despite the fact that their relationship to improvement in student or teacher learning is nonexistent; at the school or even the district level, the chosen professional development is frequently weakly connected to its expected impact. It is therefore important that schools do a better job rendering judgments about whether the current investment in teacher learning through professional development consistently and productively affects student learning.

Schools and school district policymakers must create firmer accountability by "referencing both formative and summative evaluations data of professional development to student learning" (Sykes, 1999, p. 169). Establishing the connection between in-service training and effects on teacher learning and instructional practices, in turn yielding effects on student learning, is complex and difficult to establish. Thus, school policies must address this need.

Implications for Researchers

This section includes a discussion of use of Q-Methodology as a method for obtaining the data in the current study and in the larger field of education. During the research process, new conversations and ideas emerged that were outside the study's scope. These conversations and ideas will be used to outline possible future research studies in the area of professional development for teachers.

Q-Methodology was the appropriate method to use in answering my specific research questions, as it was an effective way to understand the participants' subjective opinions about professional development. Several participants stated they had never participated in research like that of the current study, but remarked that they enjoyed the experience of completing the Q-Sort. Even more, study participants noted that they also found the experience caused them to reflect upon their current practices, especially as they were completing the Q-Sort. The combined quantitative data gathered from the Q-Sorts and qualitative data obtained from post-sort interviews provided the researcher with a better understanding of teachers' perceptions about professional development and what may prompt them to make changes to their teaching practices inside the classroom.

Post-sort interviews with the teachers participating in the study generated in-depth discussions and ideas about professional development and how teachers feel about their professional growth. These topics may guide the following research studies pertaining to professional development:

- Researchers could expand upon this study to include participants throughout the school district examined, or even in the greater United States, to determine if

independent school leadership or larger regional characteristics influence the perceptions of teachers and professional development. Individual school leaders may impact how teachers perceive the professional development in their school, and various regions in the United States may view professional development differently based on their locations, political processes, and the existence of school unions.

- A Q-Methodology study could be conducted using different Q-Sort statements about professional development, specifically emphasizing online training. Teachers in this study did indicate the need for very specific professional development that met their particular teaching and curriculum needs and, with the shift to more online forms of learning for both students and teachers, statements could be developed that specifically address elements of online professional development.
- A Q-Methodology study using the same Q-Sort statements as in the current study could be conducted, in which principals could sort the cards from their perspective in an attempt to determine what they believe their teachers most want in professional development. Many participants mentioned their frustration with the "one-size-fits-all" type of professional development they were offered in their schools. Thus, collecting this information from principals would benefit district-level leaders responsible for the professional growth of principals by helping them plan and develop professional development programs for their individual schools that would be more welcomed and effective.
- Researchers could study the impact of district-level policies on the professional development and growth of both teachers and principals. The school district and its

curriculum department generally play a defining role in how educators perceive and relate to professional development opportunities within their district, so the results could be used by local leaders to make policy changes that will improve the professional growth opportunities for all educators within the district.

- Researchers could complete this same study using only elementary school teachers. The current study was conducted using only secondary school teachers, and several participants discussed the need for professional development to be both teacher-specific and subject-specific; it would be interesting to investigate whether elementary school teachers felt the same. Investigating the differing perceptions about professional development between elementary and secondary school teachers might be relevant and interesting to the overall study of professional development.
- The current study could be expanded upon, still using secondary school teachers as subjects, yet more closely examining for evidence suggesting that worthwhile and significant changes in teaching practices occurred as a result of the professional development the teachers have received. With a group of secondary school teachers, once professional development was planned to include the four factors – meeting individual teacher needs, focusing on student and teacher learning, using much collaboration, and providing supportive structures and a safe environment – researchers could work to answer several new research questions: how would the teaching practices in the school improve, how would that impact student learning, and how would it change teachers' perceptions about professional development?

Implications for Practitioners

Public school teachers in North Carolina have experienced several monumental changes within the educational system in the past few years. The national Common Core curriculum was implemented in North Carolina during the 2012-2013 school year, and new accountability measures were adopted that focused on teacher performance. Specifically, there are new teacher evaluation criteria based on student achievement, and a new system of grading schools is being considered at the state level. In addition, a new school calendar requiring more instructional time is being implemented. Finally, the structure of teacher contracts is changing, phasing out tenure protections completely and removing pay raises for teachers with Master's and Doctorate degrees. The research in the current study focused on possible implications for practitioners regarding professional development, but the building-level and individual characteristics, and teacher morale, will also be important factors to consider. How will these changes impact teacher professional development and teachers' desire to even take part in it?

Gary Sykes' (1999) model outlines the practices required to reform professional development, either within a school or at the district level, in order to strengthen the learning connection between teachers and their students. Elements common in Sykes' (1999) model and in research community findings are conclusions that professional development should focus on the specific content of what students are to learn, how they learn that content, and how it may be taught to diverse learners.

Barriers to improved professional development at schools include: problems with the written curriculum; the planning and organization of the professional development around

the curriculum; the learning and working culture of many schools; the leader inside the school; and the deeply learned preferences of educators who are reluctant to alter their teaching and learning practices. Following such a list of issues, it stands to reason that district-level practitioners should establish plans to ensure that districts, principals, and teachers work to determine the needs of their particular schools and faculties – before determining the professional development to be implemented. Once the specific needs have been determined, principals and teachers may require assistance in obtaining the resources to implement the desired professional development plan.

In the current study, many teacher participants reported desiring differentiated professional development, clearly indicating that school districts and individual schools should provide differentiated professional development to meet the individual needs of teachers at all career stages and levels of learning. Thus, district-level leaders and school principals should consider their request.

North Carolina's public school system has faced budget declines in recent years (North Carolina Department of Public Instruction, 2013). As school budgets become tighter and tighter, teachers have voiced concerns about being able to attend or obtain quality professional development aligned with school needs. School district leaders and building-level leaders, therefore, may need to consider partnering with each other or with additional community resources to support professional development initiatives. Notably, in a recent dissertation by Brown (2013), it was suggested that districts create a master list of schools and their respective foci on professional development, a practice that would enable the

potential for all schools – administrators and teachers – to contact one another in order to gain more information or form a partnership for mutual benefit.

The teacher participants in the current study strongly believed professional development should meet the individual needs of teachers, focus on student and teacher learning, provide multiple opportunities for collaboration, and contain supportive structures and an environment encouraging risk-taking and innovation. While these are only the perceptions of a limited number of teachers who participated in this study, still, it is most certainly indicative of how a much larger group of teachers might feel about professional development. The information and findings gleaned from the current study, then, can be used to provide more effective models of professional development for teachers in districts and individual schools.

Conclusion

The current study sought to investigate teachers' perceptions of effective elements of professional development, as well as to understand the extent to which these perceptions influenced their willingness to use the tools provided through professional development to actually change classroom teaching habits. The study revealed that teachers perceived professional development to be effective and were willing to consider changing teaching practices when the professional development met their personal needs, focused on student and teacher learning, and provided time for collaboration, all within a supportive and structured environment. Interestingly, teachers did not necessarily believe the principal should direct the professional development, nor did they perceive data monitoring to be an

integral link to effective professional development as Gary Sykes (1999) and previous research have suggested.

This study began with a review of scholarly research literature pertaining to education and professional development, which pointed to the importance of truly effective and impactful professional development for teachers. As Guskey (2000) claimed, "Never before in the history of education has greater importance been attached to the professional development of educators" (p. 3). Also, according to Darling-Hammond (2010), Elmore and Burney (1999), Joyce and Showers (2002), Militello et al. (2009), and Sykes (1999), effective professional development helps to create a school culture of continuous improvement where learning about best practices is ongoing and never finished. Researchers have also noted that effective professional development focuses on the concrete tasks of teaching, assessment, observation, and reflection (Darling-Hammond, 2010; Elmore & Burney, 1999; Fullan & Hargreaves, 1996; Guskey, 2000; Hirsch, 2009; Joyce & Showers, 2002; Militello et al., 2009; Schmoker, 1999; Thompson & Zeuli, 1999). Another important element identified in the research was the need for professional development to be long-term, sustained over time, content-focused, and job-embedded (Blase & Blase, 2000; Darling Hammond, 2010; Elmore & Burney, 1999; Hawley & Valli, 1999; Showers, 1990; Sykes, 1999). Finally, a number of researchers have maintained that effective professional development is the centerpiece for improving teaching, learning, and the overall academic performance of students in a school, and it should be led by a strong instructional leaders such as the principal (Darling-Hammond et al., 1999; Elmore & Burney, 1999; Finn, 1991; Gaziel, 2007; Sykes, 1999; Thompson & Zeuli, 1999). Other effective elements of

professional development were discussed, and research results presented, in the Chapter 2 literature review.

Q-Methodology was the research design used to address the research question in the current study, a mixed-methods research approach used to scientifically examine and quantify human subjectivity (Militello & Benham, 2010). A set of 35 statements about effective professional development were culled from the extensive literature review, and participants were asked to sort the statements, in a forced distribution, based on their perceptions of professional development. A post-sort survey was also conducted to gather more perceptual and demographic data. Next, the sorts were factor-analyzed, and four factors were identified through the factor analysis research phase. After the factors were determined, post-sort interviews were conducted with participants who loaded significantly on one of the four identified factors. Overall, both qualitative and quantitative data were used to answer the research questions.

The findings revealed four factors of effective professional development, and the teachers participating in the study were grouped according to the factor on which they loaded significantly. Thirteen participants (35%) loaded significantly on Factor 1, Individual Teacher Needs. Participants in this group believed effective professional development provides learning opportunities that reflect the individual needs of teachers. They also indicated that the teachers are more willing to use professional development offered at the school and alter their teaching practices when choice with regard to topics is offered. The main focus of the school, according to Factor 1 participants, should be on meeting the needs of individual teachers by creating and offering training that is directly linked to their subject,

rather than a school-wide, one-size-fits-all type of training. Professional development should require learning, on the part of the teacher, about the specific content (knowledge) of the subject, the teaching of the subject, and how students learn the subject. Additionally, Participants in the Factor 1 group believed changes in classroom pedagogical practices will not occur unless teachers are offered professional development that explicitly and directly relates to what they are doing day-to-day in the classroom with regard to their particular subject material.

Eight participants (22%) loaded significantly on Factor 2, Student and Teacher Learning. These teachers had a set of beliefs about professional development rooted in the concept of being a life-long learner, and they believed focusing on both teacher and student learning is needed for effective professional development. For them, effective professional development should help to create a school culture of continuous improvement where learning about best practices is ongoing and never finished, with a targeted focus on training the teacher to engage and prepare students to apply what they have learned, rather than recite what they have memorized; such learning by the teacher would require extensive reflection about beliefs, practices, and ways of working with students. Generally, Factor 2 participants sought to focus professional development on the learning outcomes of the teacher and how the teacher can best provide for the optimal learning of students.

Nine participants (24%) loaded significantly on Factor 3, Collaboration. These participants valued collaboration and wanted professional development that provides opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students. Additionally, these

participants felt that school leaders and principals should actively encourage teachers to collaborate, as well as provide the needed structures of support for them to do so, such as specific days and times when the staff is expected to spend working in teams to share best practices, review achievement data, and make plans about individual student needs. According to Factor 3 participants, learning from other teachers, seeing concrete examples of classroom teaching innovation, and having time to work on the innovation are all features that mark the best kind of professional development, while also helping to meet their individual learning needs.

Seven participants (19%) loaded significantly on Factor 4, Supportive Structures and Environment. Teachers in this group described elements of effective professional development teachers as related to implementing new practices. Specifically, Factor 4 participants sought structures to be put in place that provide time for teachers to share their craft, including support from outside the school to provide necessary resources and outside perspectives. These teachers wanted to work in schools that encouraged them to redesign their teaching to support a multitude of diverse learners, but did not require them to do "one type" of teaching. In addition, they desired a professional environment that promotes and tests new ideas which may seem difficult or threatening and requires the principal to support risk-taking with regard to planning and implementation of new instructional initiatives.

The findings in the current study offered noted insights into the body of literature on professional development. That is, many elements of effective professional development identified in the literature were confirmed through this study, including the claims that effective professional development should be long-term, sustained, and content-focused, and

that it should provide opportunities for teachers to engage in discussions about what they are teaching, how they are teaching, and the results they are getting with their students. Teachers in the study also believed professional development should be differentiated based on the needs of the individual teachers and the students in the school. Moreover, they wanted time for teachers to collaborate with peers, as it was important to establish a collaborative culture that supports risk-taking and to provide an environment where teachers feel supported and can work together. Another important element of professional development identified was that it should focus on student learning, helping teachers to understand the knowledge and skills students are expected to know and demonstrate. However, there were some differences between the literature and the beliefs of participants in this study. Some participants valued support from outside the school that could provide necessary resources and outside perspectives, while others did not. While some teachers participating in the study valued the instructional leadership provided by the principal, other teachers did not. Also, some believed professional development should be primarily school-based as opposed to district-based, though others held the opposing view. Finally, using data was a point on which most teachers in the study disagreed with the literature and the model offered by Gary Sykes; although participants generally felt the use of data was important for identifying and tracking student performance, they did not see the necessity or value of assessing and monitoring the professional development as it was implemented by teachers.

The study findings also offer other insights into Sykes' (1999) conceptual framework. Participants' interests, ideologies, understandings, and past experiences played a distinctive role in their perceptions concerning professional development. Teachers generally supported

providing professional development connected to the student curriculum, but did not always agree on the specific number or types of data needed to assess student learning or teacher implementation of the professional development. Instead, teachers generally felt that monitoring student achievement was sufficient for examining the effectiveness of the new initiative, rather than examining the teacher's role. Teachers also agreed that professional development should be about both student and teacher learning.

In the end, findings in the current study were largely consistent with what much of the literature highlighted about professional development. The teacher participants in the study understood the importance of professional development and valued it as part of their continuous improvement. In particular, this study's findings indicated that teachers relate to or perceive professional development as effective when it meets their individual needs, focuses on student and teacher learning, offers time to collaborate, and is provided with supportive structures and an environment that fosters innovation. On the whole, the study revealed teachers to be most willing to change their teaching practices when the professional development being offered aligns with their personal beliefs and perceptions about teaching and learning.

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APPENDICES

Appendix A: Literature Review Table

Citation (APA)			
Literature Typology: Conceptual, Empirical, Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Blase, J., & Blase, J. (2000). Effective instructional leadership: Teachers' perspectives on how principals promote teaching and learning in schools. *Journal of Educational Administration*, *38*(2), 130-141.			
Empirical	What characteristics of school principals positively influence classroom teaching, and what effects do such characteristics have on classroom instruction? The study attempted to determine teachers' perspectives on effective instructional leadership.	Qualitative: Over 800 American teachers responded to an open-ended questionnaire by identifying and describing characteristics of principals that enhanced their classroom instruction, and addressing what impacts those characteristics had on them.	• Data revealed 2 themes and 11 strategies of effective instructional leadership. • Talking with teachers to promote reflection - Making suggestions - Giving feedback - Modeling - Using inquiry and soliciting advice and opinions - Giving praise •Promoting professional growth - Listening - Sharing their experiences - Using examples and demonstrations - Giving teachers choice - Contradicting outdated or destructive policies encouraging risk taking - Offering professional literature - Recognizing teachers' strengths - Maintaining a focus on improving instruction

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future.* New York, NY: Teachers College Press.			
Conceptual	How can we provide education that will develop more complex thinking skills for the majority of students in the United States?	Synthesis of research	• Effective PD is sustained, ongoing, content-focused, and embedded in professional learning communities where teachers work over time on problems of practice with other teachers in their subject area. • Effective PD focuses on concrete tasks of teaching, assessment, observation, and reflection, looking at how students learn specific content in particular contexts, rather than emphasizing abstract discussions of teaching. • Effective PD focuses on student learning and helps teachers to analyze the understandings/skills students are expected to acquire and what they are actually learning. • Studies of high achieving or steeply improving schools have found that student gains were associated with teachers' regular practice of consulting multiple sources of information on student performance, including student work samples and observations of their classroom performances, as well as test scores, and using those data to inform discussions about ways to improve instruction. • PD is more effective when it is a coherent part of the school's overall efforts, rather than the traditional "flavor of the month" workshop.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future.* New York, NY: Teachers College Press.			
			• What teachers learn in PD should align with what they are expected to do in class. • Time for teachers to develop productive working relationships to share practices and try new ways of teaching. • PD should be the most important focus for a district/school, its most prominent budgetary commitment, and a key part of every leader's and every teacher's job.
Elmore, R. (1992). Why restructuring alone won't improve teaching. *Educational Leadership, (49)*7, 44-48.			
Conceptual	N/A	N/A	• "Learning" has a broader, more ambitious meaning in current research. • The reason for PD lies in the very ideas underlying teaching for conceptual understanding that are subversive to the standard organizational structure of schools. One cannot expect teachers, by themselves, to carry the burden of changing their practice and the structure within which it occurs. • Research on teaching and learning suggests a very different attitude toward structure – i.e., implications for change in structure for PD. • PD should enable teaching practices that are consistent with the objective of students' conceptual understanding.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Elmore, R., & Burney, D. (1999). Investing in teacher learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 263-291). San Francisco, CA: Jossey-Bass.			
Empirical	N/A	The researchers performed an analysis of one school district's use of staff development to improve and support instruction on a system-wide basis.	• PD lies at the center of educational reform and instructional improvement. •Characteristics of effective PD: - Focuses on concrete classroom applications of general ideas - Exposes teachers to actual practice than to descriptions of practice - Offers opportunities for observations, critique, and reflection - Provides opportunities for group support and collaboration - Involves deliberate evaluation and feedback by skilled practitioners with expertise about good teaching • District 2 Example: 2 elem., 7 junior high/ inter., 17 option schools - 22,000 students - Thriving, diverse middle class population - Every school has substantial racial, ethnic, and cultural diversity • "The work of everyone in the system, from central office administrators to building principals, to teachers and support staff in schools, is about providing high-quality instruction to children" (p. 266).

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical, Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Elmore, R., & Burney, D. (1999). Investing in teacher learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 263-291). San Francisco, CA: Jossey-Bass.			
			• Instructional change is a multi-stage, long-term process. • "Instructional improvement is the main purpose of district administration, and [PD] is the chief means of achieving that purpose" (p. 272).
Elmore, R.F.., Peterson, P.L., & McCarthey, S.J. (1999). *Restructuring in the classroom: Teaching, learning, and school organization.* San Francisco, CA: Jossey-Bass.			
Empirical	What does the major process of school restructuring look like from the perspectives of the school and of individual teachers and students within the school?	Qualitative: Three longitudinal case studies examine schools at various stages of restructuring.	• The structure of schools impacts the quality of how teachers teach and how students learn. • Case 1: In-service trainings on multiple topics were conducted throughout the school year. Collaboration among teachers was required and mentors were assigned. • Case 2: PD with the teachers was conducted centrally at the Masters Center. The second year focus of PD was innovative approaches to teaching. Site visits to outstanding schools was a regular and routine process. Teachers worked with professional teaching communities outside of their school. • Case 3: The staff had direct input on their PD and what they needed.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Fullan, M., & Hargreaves, A. (1996). *What's worth fighting for in your school?* New York, NY: Teachers College Press.			
Conceptual	What kind of school setting is most likely to promote growth and improvement?	No research design No data reported	• PD for teachers has been fragmented and does not meet the real needs and concerns of teachers. • "[PD classes] tend to be offered in a set of self-contained, cafeteria-like options to target groups of school and teachers" (p. 16). • "Many staff development initiatives take the form of something that is done to teachers rather than with them, still less by them" (p. 17). • PD must take into account all the things a teacher is asked to do and how that can impact their work in a positive way with regard to instruction.
Gimbel, P.A., Lopes, L., & Greer, E.N. (2011). Perceptions of the role of the school principal in teacher professional growth. *AASA Journal of Scholarship and Practice, (7)*4, 19-31.			
Empirical	1. What kind of tangible support does your principal offer to make you feel that you are growing professionally? 2. What are the barriers to your principal not being able to support your professional growth?	A Likert-type questionnaire was used to explore the ways that 476 teachers and 135 principals see themselves as being supported in their professional growth.	• "What is not clear from the literature is how principals and teachers perceive the behaviors exhibited by principals in promoting the professional growth of teachers" (p. 20). • Principals should involve the teachers in the planning of PD and shared decision making; they should allow for teacher collaboration; providing general comments on evaluations does not promote and support professional growth; quality, constructive feedback significantly impacts professional growth.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Gimbel, P.A., Lopes, L., & Greer, E.N. (2011). Perceptions of the role of the school principal in teacher professional growth. *AASA Journal of Scholarship and Practice, (7)*4, 19-31.			
			• Top principal response: "I spend time listening to the concerns of my teachers" (#4 for teachers' perceptions of principals). • Top teacher response: "I offer a mentor to new teachers" (#11 for principals). • Teachers report principal feedback at a higher rate for new teachers than for tenured teachers. One finding from this exploratory study suggests that the longer teachers are employed, the less the principal seems to recognize their professional growth. • There is a difference in principal and teacher perceptions on the value of having a mentor; for principal respondents, offering a mentor to promote teacher growth does not seem as important as it does to teacher respondents. • Data suggest that principal participants think they seek teacher input before making a decision, but teacher participants do not agree with this perception.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Guskey, T.R. (2000). *Evaluating professional development.* Thousand Oaks, CA: Corwin Press.			
Conceptual	N/A	Review of literature	• Using PD to fulfill licensure requirements for teachers has tended to perpetuate the perception of PD as being a series of disconnected workshops. • Elements of effective PD: 1. Begin with a clear statement of purpose and goals 2. Make sure the goals are worthwhile 3. Determine how the goals will be assessed 4. Avoid disconnected approaches • Specific models of PD include: 1. Training - presenter shares with group - exploration of theory - demonstrations or modeling of skills and processes and procedures - routine practice - effective feedback with regard to teacher performance - coaching and or mentoring - few opportunities for choice and individualization 2. Observation and assessment - benefits both the teacher observing and the teacher being observed - requires a large amount of time

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Guskey, T.R. (2000). *Evaluating professional development.* Thousand Oaks, CA: Corwin Press.			
			3. Involvement in an improvement process - increases specific knowledge and skills of the teacher - works best with a small group 4. Study groups - includes having the entire staff involved in finding solutions to issues and problems 5. Inquiry/action research 6. Individually guided activities 7. Mentoring

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Hawley, W.D., & Valli, L. (1999). The essentials of effective professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 127-150). San Francisco, CA: Jossey-Bass.			
Conceptual	What professional development practices are used in schools that demonstrate substantial improvement with teaching and learning?	Synthesis of research	• Five Learner-Centered Principles 1. One's existing knowledge serves as a foundation for future learning by guiding organizations and representations, serving as a basis of association with new information, and coloring and filtering new experiences (knowledge base principle). 2. The ability to reflect on and regulate one's thoughts/ behaviors is essential to learning and development (strategic processing principle). 3. Motivational or affective factors like intrinsic motivation, learning attributions, and personal goals, as well as motivational characteristics of the learning tasks, play a noted role in the learning process (motivation/affect principle). 4. Learning, ultimately a unique adventure for all, proceeds through common stages of development influenced by both inherited and experiential and environmental factors (developmental principle). 5. Learning is as much a socially shared undertaking as it is an individually constructed enterprise (context principle).

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Hawley, W.D., & Valli, L. (1999). The essentials of effective professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 127-150). San Francisco, CA: Jossey-Bass.			
			• Eight PD Characteristics 1. Goals and Student Performance: PD should be driven by analyses of the differences between goals and standards for student learning and student performance. 2. Teacher Involvement: PD should involve learners (such as teachers) in the identification of what they need to learn and when possible, in the development of the learning opportunity and the process to be used. 3. School-based: PD should be primarily school based and integral to school operations. 4. Collaborative Problem Solving: PD should provide learning opportunities that relate to individual needs but for the most part are organized around collaborative problem solving. 5. Continuous and Supported: PD should be continuous and ongoing, involve follow-up and support for further learning, and include support from sources external to the school that can provide necessary resources and outside perspectives.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Hawley, W.D., & Valli, L. (1999). The essentials of effective professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 127-150). San Francisco, CA: Jossey-Bass.			
			6. Information Rich: PD should incorporate evaluation of multiple sources of information on outcomes for students, and processes that are involved in implementing the lessons learned through PD. 7. Theoretical Understanding: PD should provide opportunities to engage in developing a theoretical understanding of the knowledge and skills to be learned. 8. Part of a Comprehensive Change Process: PD should be integrated with a comprehensive change process that deals with impediments to and facilitators of student learning. • Describes eight design principles/ practices for effective PD: - Goals & Student Performance - Teacher Involvement - School Based - Collaborative Problem Solving - Continuous and Supported - Information Rich - Theoretical Understanding - Part of a Comprehensive Change Process

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Hirsh, S. (2005). Professional development and closing the achievement gap. *Theory Into Practice*, *14*(1), 38-44.			
Conceptual	What kinds of professional development are essential to closing the achievement gap?	Qualitative: Review of four approaches to training teachers to reduce the achievement gap, as offered by four successful educators.	• A significant challenge to schools is selecting the staff development approach that aligns most clearly with the assumptions and beliefs of staff members, and produces the results desired for students. • According to Sparks (2003), effective PD will deepen participant understanding, transform beliefs and assumptions, and create a stream of continuous actions that change habits and affect practice (as cited in Hirsh, 2005). •Haycock (1998) suggested that no single ingredient has greater impact on student achievement than the quality of the teacher in the classroom (as cited in Hirsh, 2005). • Attention must be given to finding strategies to assist less successful teachers to improve. • Four Approaches: 1. Strengthening Teaching 2. Courageous Conversations 3. Quality of Relationships with Students 4. Positive Deviance

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Howey, K. (1985). Six major functions of staff development: An expanded imperative. *Journal of Teacher Education, 36*(1), 58-64.			
Conceptual	What are the characteristics of effective staff development programs and in-service activities?	N/A	• Six specific purposes of PD: 1. Pedagogical growth 2. Understanding and discovery of self 3. Cognitive development 4. Theoretical development 5. Professional development 6. Career development • Intent of Hunter (Madeline)-type programs of staff development is to alter teacher behavior with the intent of improving pupil performance. • Not all programs are successful; often, they remain loosely coupled. Means and ends become disassociated from each other, and actions by staff developers frequently remain only loosely connected to what teachers do in their classrooms. • Improved pedagogy is the ultimate priority for staff development. • Teachers learning is primarily concerned with promoting learning in others. •Staff development designs should take into account the developmental differences and experience of teachers.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Joyce, B.R., & Showers, B. (2002). *Student achievement through staff development.* Alexandria, VA: ASCD.			
Empirical and Conceptual	N/A	Qualitative – Using six case studies of school districts, the researchers examined supporting evidence from previous research to aid educators with planning and designing professional development programs that make student learning the primary outcome.	• There are four conditions that must be met in schools to impact student learning with effective PD: 1. Collaboration – Educators work sharing practices, outcomes, and teaching ideas with each other. 2. PD focuses on curricular and instructional practices. 3. School structure – Systems and structures must be in place to create a climate that focuses on teacher learning, teacher pedagogy, teacher reflection, and student learning. 4. Effective PD provides teachers with substantial, usable skills that they can take back to the classroom to use in improving their teaching abilities.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Militello, M.C., Rallis, S.F., & Goldring, E.B. (2009). *Leading with inquiry & action: How principals improve teaching and learning*. Thousand Oaks: CA. Corwin Press.			
Conceptual	Discusses the collaborative inquiry-action cycle and how it can be used to impact student achievement as well as teacher learning.	Synthesis of research	• The collaborative inquiry-action cycle can be used to improve student outcomes and teacher performance. • Effective PD should be : (p. 110) - Centered on matters of instruction – content focus of the activity enhances teachers' knowledge and supports how students learn. - Collaborative – collective participation of teachers and school leaders - Subject-specific – focus on specific types of models of teaching or specific subjects - Site-specific – PD should serve the needs of teachers in their specific school - Ongoing – spiraling, continuous PD
Pajak, E.F., & Glickman, C.D. (1989). Dimensions of school district improvement. *Educational Leadership*, *46*(8), 61-64.			
Empirical	N/A	Mixed-Methods	• The researchers studied school districts with consistent student achievement gains for four years. They found that high-performing schools had an established structure for how to address and implement PD. They also found three major dimensions of the "how" of school improvement with regard to teacher learning to be present in all school districts.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Pajak, E.F., & Glickman, C.D. (1989). Dimensions of school district improvement. *Educational Leadership*, *46*(8), 61-64.			
			• The researchers also found three major dimensions of the "how" of school improvement with regard to teacher learning to be present in all school districts: 1. An instructional dialogue: Teachers were engaged in a continuous cycle of discussing, planning, implementing, and reviewing curriculum and instruction. 2. An infrastructure of support: Each principal had set up an organizational structure and design where staff were responsible for fostering dialogue about improving instruction and student learning. 3. Varied sources of instructional leadership: The primary instructional leaders varied, but they included central office supervisors, principals, assistant principals, department chairs, teams of teachers, and outside presenters.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Showers, B. (1990). Aiming for superior classroom instruction for all children: A comprehensive staff development approach. *Remedial and Special Education*, *11*(3), 35-39.			
Conceptual	What types of training programs result in increased knowledge and skill?	Literature review and synthesis	• Much of literature is focused on governance rather than effects. • Training methodology is rarely addressed. • Many assume that implementation will follow PD. • Theory-only – Staff PD resulted in considerable knowledge, but little skill and negligible transfer to classroom practice. • When staff PD was designed to include theory, demonstration, and practice, nearly all teachers developed sufficient skill to use these models in their classrooms. • Teachers are excellent learners – when they understand the theory of a curriculum or strategy, see multiple demonstrations of the new material or practices, and have opportunities to practice in the training setting, nearly all teachers develop sufficient skill to enable classroom practice. • Optimal staff PD design includes: (a) theory underlying the innovation; (b) demonstrations of the innovation (both live and taped) (c) opportunities for practice in the training setting • Then, one must add peer coaching study teams.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Showers, B. (1990). Aiming for superior classroom instruction for all children: A comprehensive staff development approach. *Remedial and Special Education*, *11*(3), 35-39.			
			• Training restructured the workplace-organized teachers into collegial study groups, provided regular training on alternative teaching strategies, and induced the faculties to set goals for the school improvement plan (SIP) and strive to achieve them. • Administrators led the teacher in establishing the school-wide effort. They were the cheerleaders and called for a clear, visible commitment to the innovation. • Effects of PD were expected to be gradual. • For staff PD to be effective, it requires much greater effort and sustained concentration than many have assumed.
Sykes, G. (1999). Teacher and student learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 151-179). San Francisco, CA: Jossey-Bass.			
Conceptual	Teacher professional development is a crucial element in educational reform.	N/A	• PD is the centerpiece for change. • "New knowledge and technology are not self implementing" (p. 152). • "Teachers must engage in processes of knowledge production, testing, [and] dissemination" (p. 152). • "Teachers require more sustained, in-depth involvement if changes in instructional practice are to reflect new knowledge" (p. 152).

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Sykes, G. (1999). Teacher and student learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 151-179). San Francisco, CA: Jossey-Bass.			
			• Five Characteristics/ Guidance of Effective PD: 1. Use the teacher-student learning connection as a criterion for the selection and design of TPD. 2. Embed TPD in the specific content of the student curriculum. 3. Integrate examination of student learning, using multiple sources of evidence, into TPD 4. Include attention to student learning in TPD associated with the implementation of curricular and instructional innovations. 5. Reference both formative and summative evaluation of TPD to student learning. • Teachers need to deepen (1) their own understanding of the subject matter and skills related content, (2) the various ways of representing and conveying that content in instruction (frequently referred to as pedagogical knowledge or understanding of content), and (3) their understanding of how students learn the content. • Knowledge related to the teaching and learning of subject matters appears most critical.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Sykes, G. (1999). Teacher and student learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 151-179). San Francisco, CA: Jossey-Bass.			
			• An examination of Kennedy's 1998 review of research that examined the impact of in-service education programs on student achievement in math and science. • Learning by teachers needs to go one level deeper than just subject specificity. • Cohen and Hill (1998) wrote, "When teachers have significant opportunity to learn the content that their students will study in ways that seem to enable them to learn more about teaching that material, and when assessments are linked to the student and teacher curriculum, teachers' opportunities to learn pay off in their students' performance" (as quoted in Sykes, 1999, p. 164). • PD must validate the impact of the staff development on student learning. • The causal chain that connects an in-service intervention to effects on teacher thinking and instructional practice, in turn yielding effects on student learning, is complex and hard to establish.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Sykes, G. (1999). Teacher and student learning. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 151-179). San Francisco, CA: Jossey-Bass.			
			• Policymakers and administrators have an important role to play in creating conditions that are conducive and supportive of teacher PD. • There must be a greater attention to the core relationship between what teachers learn and what students learn, building outward from this essential connection. • In the competition for the precious resource of teacher time and attention, professional attention to student learning and the content of student learning should be the paramount consideration.
Thompson, C., & Zeuli, J. (1999). The frame and the tapestry: Standard-based reform and professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 341-375). San Francisco, CA: Jossey-Bass.			
Conceptual	N/A	Review of literature	• "Teachers will have to unlearn much of what they believe, know, and know how to do while also forming new beliefs, developing new knowledge, and mastering new skills" (p. 341).

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Thompson, C., & Zeuli, J. (1999). The frame and the tapestry: Standard-based reform and professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 341-375). San Francisco, CA: Jossey-Bass.			
			• "The essential point – the inner intent that seems so seldom grasped even by teachers eager to embrace the current reforms – is that in order to learn the sorts of things envisioned by reformers, students must think. In fact, such learning is almost exclusively a product or by-product of thinking. By 'think,' we mean that students must actively try to solve problems, resolve, dissonances, between the way they initially understand a phenomenon and new evidence that challenges that understanding, put collections of facts or observations together into patterns, make and test conjectures, and build lines of reasoning about why claims are or are not true. Such thinking is generative" (p. 346). • Focus on learning – teaching kids to think about their thinking and how it helps them make sense of the world. • Teachers must understand that students must think in order to learn, and whether they know how to provoke, stimulate, and support students' thinking are skills all teachers must know. • Most district-sponsored professional development is fragmented or scattered, brief rather than sustained, and not aligned with well specified curricular and instructional standard.

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Thompson, C., & Zeuli, J. (1999). The frame and the tapestry: Standard-based reform and professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 341-375). San Francisco, CA: Jossey-Bass.			
			• "The essential point – the inner intent that seems so seldom grasped even by teachers eager to embrace the current reforms – is that in order to learn the sorts of things envisioned by reformers, students must think. In fact, such learning is almost exclusively a product or by-product of thinking. By 'think,' we mean that students must actively try to solve problems, resolve, dissonances, between the way they initially understand a phenomenon and new evidence that challenges that understanding, put collections of facts or observations together into patterns, make and test conjectures, and build lines of reasoning about why claims are or are not true. Such thinking is generative" (p. 346). • Focus on learning – teaching kids to think about their thinking and how it helps them make sense of the world. • Teachers must understand that students must think in order to learn, and whether they know how to provoke, stimulate, and support students' thinking are skills all teachers must know. • Most district-sponsored professional development is fragmented or scattered, brief rather than sustained, and not aligned with well specified curricular and instructional standard.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Thompson, C., & Zeuli, J. (1999). The frame and the tapestry: Standard-based reform and professional development. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 341-375). San Francisco, CA: Jossey-Bass.			
			• PD should focus on: - The ideas and the connections among the ideas that students are learn - Students' thinking and learning - Teaching • PD should be provided by/through: - Challenging teachers' existing beliefs and practices on the one hand and their experience with subject matter, students' learning, and teaching on other. - Provide time, contexts, and supports for teachers to think. - Ensure the work is connected to the teacher's own students and context. - Provide a way for teacher to develop a repertoire for practice that is consistent with the new training and knowledge being provided. - Provide continuing and long-term help.

**PD= Professional Development*

Literature Review Table (continued)

Citation (APA)			
Literature Typology: Conceptual, Empirical Dissertation	Research Questions	Research Design: Qualitative, Quantitative, Mixed Method, Procedures, and Sample	Main Findings
Wagner, T. (2008). *The global achievement gap.* New York, NY: Basic Books.			
Conceptual	Why do schools not teach the new survival skills that children need?	N/A	• Wagner suggests that our nation's schools are obsolete, or moving in that direction. • Instead of teaching students to be critical thinkers and problem solvers, schools are asking them to memorize facts for multiple choice tests, and the problem is not limited to low-income school districts • Wagner interviewed scores of business leaders and observed hundreds of classrooms. He found a disconnection between what employers are looking for and what our schools are providing. • The book also explores how teachers, parents, and employers can work to motivate and educate the current generation of students.

**PD= Professional Development*

Appendix B: Study Instructions, Questionnaire, and Participant Demographics

Card Sort/Distribution Grid Instructions

Thank you again for your willingness to participate in this research study. In this process, you will sort and rank statements on a distribution grid from the statements you most agree with to those you most disagree with.

Instructions:

1. Lay out the column titles from -4 to +4 across the top of the table or desk.
2. Please read through all 34 statement cards to become familiar with the statements.
3. Please read through the statements for a second time. As you read the statements, please organize them into three piles:
   - On the right, place the cards with the statements of which you **most prefer**.
   - On the left, place the cards with the statements of which you **least prefer**.
   - In the middle, place the cards that you feel more undecided about or you neither prefer nor don't prefer the statement.
4. Beginning with the pile on the right (most prefer), place the 2 cards that you most strongly prefer in the far right column in any order.
5. Next, turning to your left side (least prefer), place the 2 cards that you most strongly least prefer in the far left column in any order.
6. Returning to the pile on the right, choose 3 cards that represent the next statements with which you agree and place these cards under marker +3, in any order.
7. Do the same with the pile on the left, following this pattern as you work your way to the center pile.
8. You are free to change your mind during the sorting process and switch items around as long as you maintain the requested number of items under each marker
   - You should have 2 cards under markers +4 and -4.
   - You should have 3 cards under markers +3 and -3.
   - You should have 4 cards under markers +2 and -2.
   - You should have 5 cards under markers +1 and -1.
   - You should have 6 cards under marker 0.
9. Your sorted cards should match the diagram on the handout. After sorting the cards, please record each card's specific number onto the diagram in the same order as you sorted the cards.
10. After sorting the cards, complete the Post-Sort Questions and Demographic Information.
11. If you are willing to be interviewed about your card sort, please provide your contact information in the blank spaces in question 8 of the Post-Sort Questions.

Post-Sort Questionnaire

1. Tell me about the statement(s) you placed in the "Most Prefer" column. What do those statements mean to you?

2. Tell me about the statement(s) you placed in the "Least Prefer" column. What do those statements mean to you?

3. As you sorted the cards, did you feel that any statement about your beliefs was missing? If so, what? Where would you place that card and why?

4. Which statement, if any, did you have difficulty placing? Why?

5. Which statement(s) were the easiest to place? Why?

6. What are your beliefs about professional development?

7. What are your beliefs about instructional leadership?

8. If you are willing to be interviewed about your perceptions and beliefs with regard to professional development and instructional leadership, please provide your contact information.

Name:_____

Address:_____

Phone Contacts: (H)____-____-_____ (W)____-____-_____ (CP)____-____-_____

Participant Demographic Information

1. How many years, including this school year, have you been a teacher? Check the appropriate response.

___ 0-4 years ___ 5-9 years ___ 10-14 years ___ 15 or more years

2. Indicate your current teaching assignment by marking the appropriate response.

___ Elementary (grades K-5) ___ Middle (grades 6-8) ___ High (grades 9-12)

___ Other (please explain)

3. How long have you been a teacher at your current school? _____

4. What is your highest earned degree? Check the appropriate response.

___ Bachelor ___ Master ___ Doctorate ___ Other (please explain)

Appendix C: Focus Group Interview Questions

1. Looking at the model factor array in front of you, what important professional development themes emerged to you as you completed the factor array?

2. Looking at Factors +3 and +4, why are those so important to you for professional development?

3. Looking at Factors -3 and -4, why are those so unimportant to you?

4. What is it about professional development that influences you to make changes in your teaching?

5. What is it about the principal or school leadership behaviors, with regard to professional development, that influences you to make changes in your teaching?

Appendix D: Card Sort Consent Form for Participants

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: Teachers' Perceptions of Professional Development: What Administrators Must Know to Influence Pedagogical Change

Researcher: Edward S. McFarland, under the guidance of Dr. Matthew Militello

You are being asked to take part in a research study by participating in a Card Sort Exercise. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of the phenomenon being examined. You are not guaranteed any personal benefits from being in this study. Research studies also may pose risks to those who participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. If you wish, a copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher named above.

Purpose of the Study
The purpose of this study is twofold. First, the study will to seek to understand what elements of professional development and the principal's instructional leadership are most important to effective teacher training in schools. Second, the study will look into what factors/characteristics about professional development and instructional leadership influence teachers' willingness to make changes in their professional practices.

What will happen if you take part in the study?
If you agree to participate in this stage of the study, you will be asked to sort 34 cards. These cards have statements printed on them and your task will be to sort them according to your own beliefs. This process should take no more than 30-45 minutes. During the process, I will ask you questions about why you placed specific statements in certain areas on the Distribution Grid. After sorting the cards, you will be asked to complete a brief questionnaire about the statements and some general demographic data. Your card sort and your responses to the questionnaire will remain anonymous.

Risks
There are no known risks to sorting the cards.

Benefits
Aside from adding to the body of knowledge about professional development and instructional leadership, participants may enjoy thinking about and expressing their own opinions.

Confidentiality
The information in the study will be kept confidential to the full extent allowed by law. Data will be stored securely on a computer and in a file cabinet of which only the researcher has access. No reference will be made in oral or written reports which could link you to the study.

Compensation
You will not receive any compensation for your participation.

What if you have questions about the study?
If you have questions at any time about the study or the procedures, you may contact the researcher, Edward McFarland, at emcfarland@wcpss.net.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919-515-4514).

Consent to Participate
"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Subject's signature_____ Date _____

Investigator's signature_____ Date _____

Appendix E: Post-Sort Interviews Consent Form for Participants

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: Teachers' Perceptions of Professional Development: What Administrators Must Know to Influence Pedagogical Change

Researcher: Edward S. McFarland, under the guidance of Dr. Matthew Militello

You are being asked to take part in a research study by participating in an interview. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of the phenomenon being examined. You are not guaranteed any personal benefits from being in this study. Research studies also may pose risks to those who participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. If you wish, a copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher named above.

Purpose of the Study
The purpose of this study is to understand principals' perceptions of effective elements of professional development and principals' perceptions of their role in facilitating the professional development of teachers.

What will happen if you take part in the study?
The purpose of this study is twofold. First, the study will to seek to understand what elements of professional development and the principal's instructional leadership are most important to effective teacher training in schools. Second, the study will look into what factors/characteristics about professional development and instructional leadership influence teachers' willingness to make changes in their professional practices.

Risks
There are no known risks to sorting the cards.

Benefits
Aside from adding to the body of knowledge about professional development and instructional leadership, participants may enjoy thinking about and expressing their own opinions.

Confidentiality
The information in the study will be kept confidential to the full extent allowed by law. Data will be stored securely on a computer and in a file cabinet of which only the researcher has access. No reference will be made in oral or written reports which could link you to the study.

Compensation
You will not receive any compensation for your participation.

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Consent to Participate
"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled."

Subject's signature_____ Date _____

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