MIDDLE SCHOOL TEACHERS' PERCEPTIONS OF PROFESSIONAL DEVELOPMENT EXPERIENCES

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By

Martha Harrill Robinson

Director: Dr. Sandra Tonnsen
Associate Professor
Department of Educational Leadership and Foundations

Committee Members:
Dr. John Sherlock, Human Resources
Dr. Kathleen T. Jorissen, Educational Leadership and Foundations

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DEDICATION

When I began this process seven years ago, I could not have imagined the way my life would change. But, that is part of the mystery of life – each day bringing new joys and sorrows, new challenges and adventures as they are all part of God's master plan. And so the years have gone – the excitement of my new goal, the tragic diagnosis of Alzheimer's disease and the bittersweet loss of my dear husband, a period of grieving, finding love again, reaching my goal. Such is the cycle of life – we love, we lose, we grow – every day and each new experience creating the person we are.

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ABSTRACT

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Martha Harrill Robinson

Western Carolina University (March 2011)

Director: Dr. Sandra Tonnsen

The purpose of this study was to examine western North Carolina's middle school teachers' perceptions of the professional development experiences they participated in during the 2009-2010 school year and whether or not the professional development they participated in contributed to student achievement and positively affected classroom practice. There were 862 teachers from 21 public middle schools who received an invitation to participated in the study; 230 responded for a return rate of 27.6%. This study attempted to answer these questions: (1) To what extent do middle school teachers believe their professional development during the 2009-2010 school year was aligned with the Learning Forward Standards? (2) In what ways do middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement? (3) Is there a relationship between middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district? (4) Is there a relationship between middle school teachers' perceptions of the impact of professional development on their classroom

practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district? (5) What do middle school teachers perceive as their greatest professional development need? (6) What professional development experience do middle school teachers say is the most beneficial experience of their career?

The conceptual framework based upon Learning Forward's professional development standards provided the foundation for exploring how teachers perceived their professional development experiences. The researcher-designed survey was developed around the twelve elements of the professional development standards. Teachers' perceptions of their professional development experiences were correlated with teachers' gender, teachers' years of experience, subject(s) taught, and the size of the district. The quantitative data analyzed included teachers' gender, teachers' years of experience, subject(s) taught, and the size of the district. Qualitative data included the teachers' descriptions of their most beneficial professional development experience as well as those teachers believed impacted their classroom practices and student achievement. Teachers were asked to identify their greatest professional development need. After analysis of the survey data, a focus group, from the district where teacher perceptions closely aligned to the standards, was convened to gain insight into the teachers' perceptions of their professional development experiences.

This study found teachers believed their professional development was aligned or strongly aligned with the items on the survey representing the standards. Teachers indicated that learning about specific instructional programs and collaboration with other

teachers had the greatest impact on their classroom practices. Similarly, teachers indicated that learning about specific instructional programs and collaboration with other teachers had the greatest impact on their student achievement. Nearly three-fourths of the teachers reported their greatest professional development need had a content-specific focus. Teachers reported their most beneficial professional development experience was content-specific.

CHAPTER ONE: INTRODUCTION

North Carolina Middle School Principal Smith observes the teachers as they peruse their test scores from the 2009-2010 school year. He notices that while many teachers look pleased with their results, there are just as many who look frustrated. In fact, after implementing a series of professional development opportunities that centered on creating a learning-focused curriculum, Principal Smith expected school-wide improved test scores; however, the results seem fragmented. He wonders, "What should the focus of our professional development be? Were professional learning communities utilized appropriately? What professional development did teachers find most valuable?"

Definition of Professional Development

Principal Smith's dilemma is not new, but increased emphasis on student achievement as measured by standardized tests has heightened the need for effective professional development. Professional development, commonly referred to as staff development, in-service training, or in-service education, is defined by the American Federation of Teachers (1995) as "a continuous process of individual and collective examination and improvement of practice" (p. 5). Lindstrom and Speck (2004) define professional development as:

> a lifelong, collaborative learning process that nourishes the growth of individuals, teams, and the school through a daily, job-embedded, learner centered, focused approach. It emerges from and meets the learning needs of participants as well as clearly focuses on improving student learning. (p. 10)

Sparks and Bransford (as cited in Jackson and Davis, 2000) expand this definition specifically for the middle school educator by defining professional development as a "results-driven, standards-based" program that is "embedded in teachers' daily work" and "grows out of understanding the principles of adult learning" (p. 110).

Often professional development is used simply to mean "teacher training" (Lambert, 2003, p. 22). Lambert further defines professional development to "include learning opportunities that can be found in collegial conversations, coaching episodes, shared decision-making groups, reflective journals, parent forums, or other such occasions" (p.22). She maintains the learning of both teachers and students can be addressed concurrently when the focus of collegial conversations addresses a particular topic or skill, for example, problem solving or literacy. Lambert urges educators not to understate the value of working together as adults, referring to this collegiality as "skilled work" (p. 22). For this study, professional development was defined by Learning Forward's professional development standards which are also North Carolina's requirements for professional development.

Professional Development Standards

Learning Forward (formerly known as the National Staff Development Council) amalgamates and expands the aforementioned definitions in their 2008 proposed amendment to section 9101 (34) of the Elementary and Secondary Education Act as reauthorized by the No Child Left Behind Act of 2001 (National Staff Development Council, n.d.). This document defines professional development as "a comprehensive,

substantiated, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement" (p. 1). The organization further asserts that:

> Professional development fosters collective responsibility for improved student performance and must be comprised of professional learning that (a) is aligned with rigorous state student academic achievement standards as well as related local educational agency and school improvement goals; (b) is conducted among educators at the school and facilitated by well-prepared school principals and/or school-based professional development coaches, mentors, master teachers, or other teacher leaders; (c) primarily occurs several times per week among established teams of teachers, principals, and other instructional staff members where the teams of educators engage in a continuous cycle of improvement that – (i) evaluates student, teacher, and school learning needs through a thorough review of data on teacher and student performance; (ii) defines a clear set of educator learning goals based on the rigorous analysis of the data; (iii) achieves the educator learning goals identified in sub-section (A)(3)(ii) by implementing coherent, sustained, and evidence-based learning strategies, such as lesson study and the development of formative assessments, that improve instructional effectiveness and student achievement; (iv) provides job-embedded coaching or other forms of assistance to support the transfer of new knowledge and skills to the classroom; (v) regularly assesses the effectiveness of the professional development in achieving identified learning goals, improving teaching, and assisting all students in meeting challenging state academic achievement standards; (vi) informs ongoing improvements in teaching and student learning;

> and (vii) that may be supported by external assistance. (B) The process outlined in (A) may be supported by activities such as courses, workshops, institutes, networks, conferences that: (1) must address the learning goals and objectives established for professional development by educators at the school level; (2) advance the ongoing school-based professional development; and (3) are provided by for-profit and nonprofit entities outside the school such as universities, education service agencies, technical assistance providers, networks of content-area specialists, and other education organizations and associations. (National Staff Development Council, 2008a, p.1)

While many organizations have developed standards that parallel these definitions of professional development, Learning Forward is considered the premier promulgator. Their purpose focuses on advancing "effective practices at the federal, state/provincial, and local levels" in order to provide universal guidelines for education agencies (NSDC, 2008a, p. 1). Divided into three categories, these standards, which serve as the conceptual framework for this study, address the context, process, and content standards of professional development, which improves the learning of all students (National Staff Development Council, 2008b). The context standards address learning communities, leadership, and resources that serve as the premise for all professional development. The learning communities and leadership areas focus on goals which are aligned with the school and district as determined by skillful school and district leaders, while the resources focus on the time, materials, and funding required for the support of adult learning and collaboration.

The process standards call for professional development to be data-driven, evaluated, research-based, appropriate, and collaborative. Using student data determines priorities, monitors progress, and helps sustain continuous improvement, which provides educators with evaluative tools that guide curriculum planning. Furthermore, the process standards use goal-oriented learning strategies for educators to apply knowledge of human learning in a collaborative environment.

Finally, the content standards focus on equity, quality teaching, and family involvement. These standards reinforce content knowledge with new research-based instructional strategies that enable educators to understand and appreciate student needs while holding high expectations for their academic achievement. In addition, they emphasize the need for safe and orderly supportive learning environments that involve families and other community stakeholders. Without each component, an educator's professional development opportunity would not be "results-driven, standards-based, and job-embedded" (NSDC, 2008b, p. 1).

The Challenges of the Middle Level Learner

The unique needs of middle level students present a challenge for even the most effective teacher. The transition from elementary to middle school and from middle school to high school brings unique challenges. Teachers are faced with concerns about the maturity levels of students, the effects of peer pressure, adolescent physical development, reduced parent involvement, and insufficient basic skills (Akos & Galassi, 2004). An additional problematic outcome which educators face associated with this transition is that of "declining academic motivation" of students (Eccles, Lord, & Roeser, 1996, p. 56).

The current emphasis on testing and accountability is causing this transition to middle school to receive more attention. Educators today must educate students in core academic areas while equipping students with the motivation and skills to continue learning beyond the classroom (Akos, Queen, & Lineberry, 2005). The role of the teacher must continue to be redefined and expanded as teachers shape young people for tomorrow's world:

> When schools are responsive to the needs of the educators who facilitate instruction, the education process, in conjunction with the transition phase, can improve significantly. The staff needs to be armed with skills that make the transition easier and provide a clear understanding of young adolescents' cognitive, social, and emotional development. Teachers must recognize middle school as a time of vulnerability, low self-esteem, and delicate egos. These students tend to seek guidance and reassurance. The adolescents' journey through middle school is a road filled with ups and downs. Accompanying students on that journey can challenge even the most effective teacher. (Akos, Queen, & Lineberry, 2005, p. 107)

While defining professional development and its components is relatively simple, implementing the concepts in diverse settings while meeting federal mandates is problematic. As teachers seek instructional strategies to aid student growth, professional development opportunities must be intensive and targeted for teachers to achieve optimum results. However, time, materials, and funding are not always available for professional development which leaves educators like Principal Smith wondering, "While high quality professional development is crucial for making significant and long-lasting

changes in education, do teachers perceive professional development opportunities as appropriate, positive, and useful in meeting students' needs?"

Purpose of the Study and Research Questions

The purpose of this study was to examine middle school teacher perceptions of whether or not the professional development in which they participated contributed to student achievement and positively affected classroom practices. The following questions were addressed in this study:

1. To what extent do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year was aligned with the Learning Forward Standards?
2. In what ways do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement?
3. Is there a relationship between western North Carolina's middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?
4. Is there a relationship between western North Carolina's middle school teachers' perceptions of the impact of professional development on their classroom practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?
5. What do western North Carolina's middle school teachers perceive as their greatest professional development need?

6. What professional development experience do western North Carolina's middle school teachers say is the most beneficial experience of their career?

Definitions of Terms

For the purpose of this study, the following operational definitions were used:

Continuing education units (CEUs) – name given to professional development offerings and/or college coursework in areas approved for maintaining North Carolina teaching license. Ten hours of coursework is equivalent to one CEU credit.

ENCORE – refers to a remedial course offered during the exploratory classes in western North Carolina's middle schools. Generally, students placed in these courses have scored Levels 1 or 2 on the End of Grade Test or have been classified by teachers as needing remediation.

EVAAS - SAS® EVAAS™- a customized software system for K-12, which is available to all NC school districts. *EVAAS™ (Education Value-Added Assessment System)* provides diagnostic reports to district and school staff to determine the effectiveness of the school experience. Charts and graphs accessed via the Web produce reports that predict student success, show the effects of schooling at particular schools, or reveal patterns in subgroup performance. EVAAS™ tools provide a precise measurement of student progress over time and a reliable diagnosis of opportunities for growth that help to identify which students are at risk for under-achievement (North Carolina Department of Public Instruction, n. d.).

Middle school – the school that follows elementary school and precedes high school. It is sometimes referred to as an intermediate school and was previously called junior high school. Middle schools' grade configurations vary; common ones include grades 4-8, 6-8,

and 7-9 (Ravitch, 2007). For purposes of this study, middle school will refer to the 6-8 schools comprised solely of sixth, seventh, and eighth grade students.

Learning Forward (LF) - the largest non-profit professional association committed to ensuring success for all students through staff development and school improvement. Learning Forward's purpose is that every educator engages in effective professional learning every day so every student achieves. Prior to September 2010, Learning Forward was known as the National Staff Development Council.

No Child Left Behind Act of 2001(NCLB) – a federal mandate that addresses achievement for all students.

Pedagogy – the study of education and education practice (Ravitch, 2007).

Professional Development – a comprehensive, sustained, and intensive approach to improving teachers' and principals' effectiveness in raising student achievement (Hirsh, 2009, p. 12).

Professional Learning Community (PLC) – "an inclusive group of people, motivated by a shared learning vision, who support and work with each other, finding ways, inside and outside their immediate community, to inquire on their practice and together learn new and better approaches that will enhance all [participant's] learning" (Stoll, Bolam, McMahon et al., 2005, p. 1).

Renewal cycle – the period of five years in which North Carolina requires all certified teachers to obtain 15 continuing education units to maintain an active license.

Resources – the time, materials, and funding used to further professional development.

Western North Carolina (WNC) –in this study, WNC includes the counties of Avery, Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Yancey.

Overview of Design

This study involved the analysis of quantitative and qualitative data from a researcher-designed survey to determine middle school teachers' perceptions of staff development and the resources provided for it. The types of quantitative data analyzed included teachers' gender, teachers' years of teaching experience, the subject(s) taught, and the size of the district, as well as the fixed item responses (e.g. Likert scale items) on the survey. Data on each of these variables were obtained from the survey, excluding the size of the district, which were obtained from the North Carolina School Report Card (2010). The types of qualitative data that were analyzed were the professional development experiences and needs which the teachers described as well as the resources provided and recommended for professional development. Additionally, qualitative data included the responses of the focus group. Following analysis of the survey data, a focus group was convened from the district whose responses aligned with the items on the survey which represented the Learning Forward Standards to obtain further insight to teachers' responses.

Conceptual Framework

This study was guided by the context, process, and content standards (Appendix A) from Learning Forward. Each standard begins with the premise "Staff development that improves the learning of all students" and is followed by a description of the

elements making up the standard (NSDC, 2008a, p.1). The context standards have three elements:

> (a) organizes adults into learning communities whose goals are aligned with those of the school and district, (b) requires skillful school and district leaders who guide continuous instructional improvement, and (c) requires resources to support adult learning and collaboration.

The process standards are made up of six elements:

> (a) uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement; (b) uses multiple sources of information to guide improvement and demonstrate its impact; (c) prepares educators to apply research to decision making; (d) uses learning strategies appropriate to the intended goal; (e) applies knowledge about human learning and change; and (f) provides educators with the knowledge and skills to collaborate.

Finally, the content standards contain three elements:

> (a) prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and hold high expectations for their students' academic achievement; b) deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately; and (c) provides educators with knowledge and skills to involve families and other stakeholders appropriately. (NSDC, 2008a p. 1)

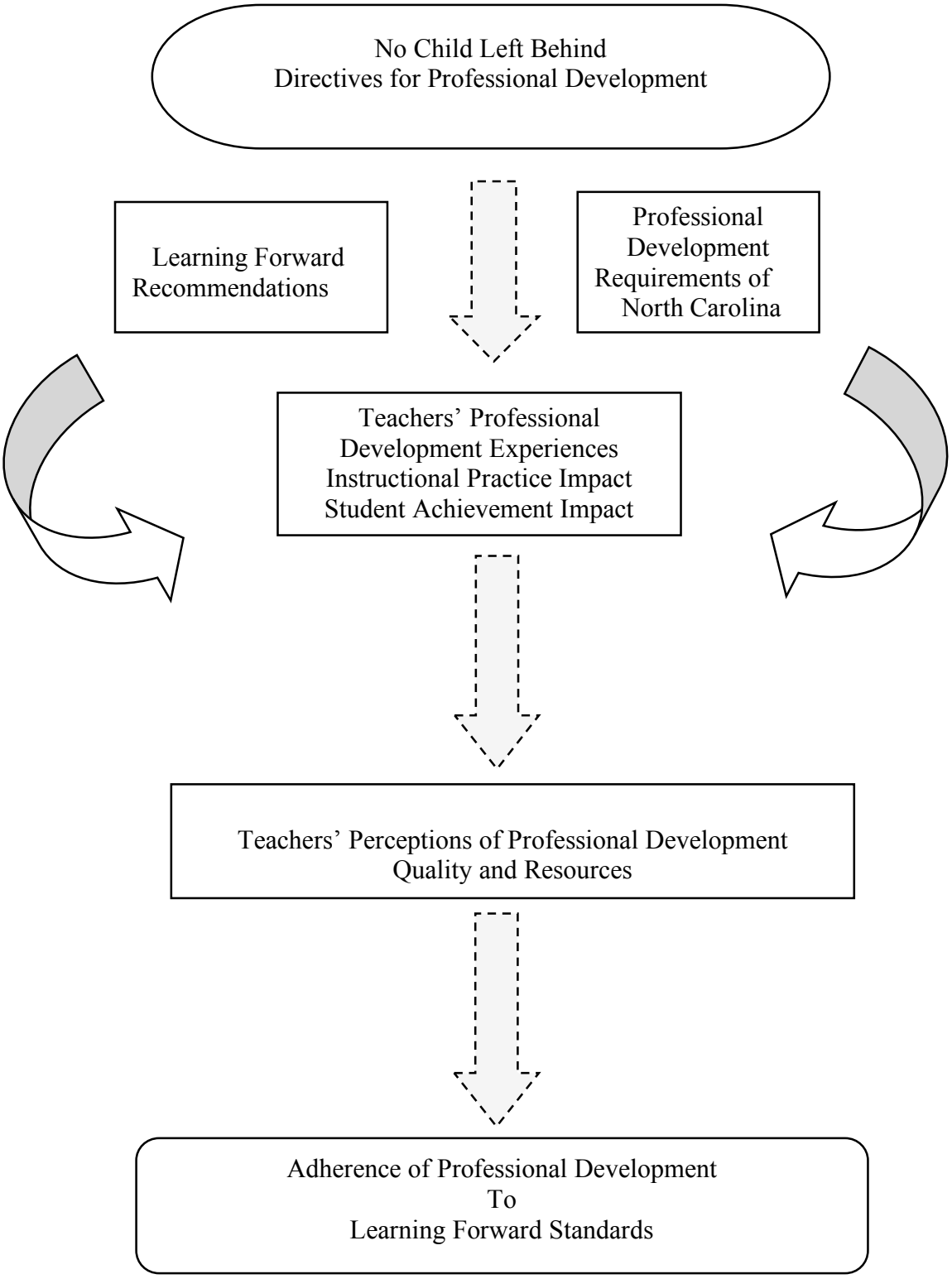
The researcher-designed survey was developed around these standards and addressed each of the twelve elements. Teachers' perceptions of their professional development experiences, including resources (time, materials, funding), content, and delivery were correlated with teachers' gender, teachers' years of experience, subject(s) being taught, and size of the district. Figure 1 illustrates the conceptual framework for this study.

Significance of the Study

To gain a better understanding of western North Carolina's middle school teachers' perceptions of professional development and the resources provided for it, more information was needed on how teachers feel their professional development needs are being met. This study was important because no region-wide studies in western North Carolina's middle schools have been conducted to assess the perceptions of middle school teachers about professional development. This study will contribute to regional and local professional development leaders' understanding of teachers' perceptions of professional development, which leads to increased student achievement so that opportunities may be targeted toward teacher needs with planned professional development In addition, the researcher found no existing study which examined teachers' perceptions of the alignment of NSDC standards and professional development in the middle schools of western North Carolina

This study is worthwhile because there are numerous professional development opportunities available to teachers during the school year and many of them satisfy the current North Carolina requirement of continuing education units for renewal credit.

Figure 1. Conceptual Framework



However, with the increased demands of the No Child Left Behind Act of 2001 (NCLB) study and high stakes testing, coupled with the unique developmental needs of middle school students, the time teachers spend in professional development must be beneficial. Teachers need time to plan, to implement, to practice, and to collaborate. Findings of the study provide valuable information for practitioners as to what professional development opportunities teachers find useful. As a result, professional development leaders may evaluate and revise their respective professional development programs.

Since NCLB holds schools accountable by requiring that all students reach proficiency on state assessments by 2013-2014, it is crucial that teachers have the knowledge and skills needed to be highly effective teachers. Professional development is a key strategy of NCLB for improving teachers' knowledge and skills. If professional development is to have the intended effects of improving instruction and student learning, the quality of professional development for teachers is critically important (NCLB, 2001). The reauthorized ESEA [§9101(34)] requires all schools who receive Title I funds to provide "high-quality professional development for principals, teachers, and other staff, including paraprofessionals" (Birman et al., 2007, p. 89). To be considered "high quality," the professional development activities must meet the following requirements:

> (a) Be sustained and classroom-focused. It must be provided over time and should not take the form of one-day or short-term workshops; (b) Improve the teaching of academic subjects by contributing to an increase in teachers' knowledge of the academic subjects they teach, consistent with the state's content standards, to enable children to meet these standards; (c) Provide training in the

> use of effective, scientifically based instructional strategies for a diverse range of students, helping to close the achievement gap; (d) Support the district and school needs assessment and district and school plans, including Program/Activity Plans and Title I Unified Plans, if applicable; (e) Draw on resources available under other programs such as NCLB Title IIA, and from other sources;(f) Include strategies for developing curricula and teaching methods that integrate academic and vocational instruction (including applied learning and team teaching) if an LEA determines such strategies are appropriate; and (g) Include strategies for identifying and eliminating gender and racial bias in instructional materials, methods, and practices. (NCLB, 2001)

Quality professional development is a significant factor in increasing students' overall achievement (Carpenter et al., 2004). Learning Forward recommends that all education professional development "should enhance the teaching and learning process" (NSDC, 2008b, p. 1). There appears to be a disconnect, however, between most professional development and the work of teachers and teacher leaders within their own districts. According to Fullan (2009), only 10% to 20% of American teachers experience what he terms *meaningful* professional development. Additionally, more than 90% of them have participated in professional development consisting mainly of one day or short-term workshops and conferences. In comparison, "Other nations that outperform the United States on international assessments invest heavily in professional learning and build time for ongoing, sustained teacher development and collaboration into teachers' work hours" (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009, p. 6). According to Schmidt, Houang, and Cogan (2002), there are few studies of professional

development that examine the link between professional development and student achievement. Based on the literature that does exist, they concluded:

> Professional development is most effective (a) when it is focused on the content teachers must teach and how to teach it, or, (b) when it is provided in concert with a curriculum and helps teachers to understand and apply that curriculum. Such professional development can raise student achievement substantially. (p. 12)

Furthermore, Thompson (2003) pointed out some recent research studies which indicate a link between professional development and increased student achievement. For example, Kennedy (1998) found that professional development was effective in raising student achievement only when it focused on "how students learn specific school subject matter, knowledge of how to teach specific school subject matter" (p. 3).

Chapter Summary

This chapter presents the various, yet similar, definitions of professional development while centering on the Learning Forward Standards for professional development. It discusses the importance of targeting professional development for optimum student performance, and references the time, money, and resources needed to make a significant impact. The researcher asserted the need for a study on western North Carolina's middle school teachers' perceptions of effective professional development in relation to Learning Forward Standards and their effectiveness in the classroom since no published region-wide study has been found.

Chapter Two provides an historical overview of middle school professional development, current academic and testing standards, and the realities which teachers face, including disparities of time, resources, and funding.

CHAPTER TWO: REVIEW OF RELATED RESEARCH

This literature review is organized into six sections. The first section contains standards that provide the conceptual framework for this study, the second section explores the history of professional development in the middle school, the third section deals with the laws and policies related to implementing professional development in the middle school, and the fourth section deals with the realities teachers face as they implement strategies learned in professional development. The fifth section examines the impact of professional development on student achievement and the sixth section contains the chapter summary.

Conceptual Framework

The conceptual framework guiding this study is the context, process, and content standards (Appendix A) from Learning Forward. Teachers' perceptions of their professional development experiences, including resources (time, materials, funding), content, and delivery were correlated with teachers' gender, teachers' years of experience, the subject(s) taught, and the size of the district. The perceived effect of these factors on teaching and learning was also examined as well as the teachers' perceptions of their most beneficial professional development experience and their greatest professional development need.

Learning Forward's purpose focuses on advancing "effective practices at the federal, state/provincial, and local levels" (NSDC, 2008a, p. 1) in order to provide universal guidelines for education agencies. Divided into three categories, these standards address the context, process, and content standards of professional development, which improve the learning of all students. The following summary,

beginning with the context standards, includes the standard and the rationale for each standard from Learning Forward.

Context Standards

The context standards address learning communities, leadership, and resources that serve as the premise for all professional development. The learning communities and leadership areas focus on goals which are aligned with the school and district as determined by skillful school and district leaders, while the area of resources focuses on time, materials, and funding required for support of adult learning and collaboration. Summarily, the context standards negate the idea of exclusive domain. Rather, they emphasize the need for continuous, collective collaboration among all stakeholders including board of education members, principals, district administrators, and faculty and staff members.

Learning Communities. Staff development that improves the learning of all students organizes adults into learning communities whose goals are aligned with those of the school and district. Emphasis is placed on learning communities which meet on a regular basis, several times a week if possible, for joint lesson planning, learning, and problem solving. This type of professional development differs greatly from the workshop approach; the learning community acts on a daily basis using school and district goals to advance student learning. Members of the learning community assist each other in examining lessons, critiquing student work, and solving the common problems which arise in teaching. Together they determine areas where more knowledge is needed and read, take courses, or invite consultants to assist them in the classroom. This collegiality serves to strengthen the learning community and is made even stronger when

administrators, support staff, and school board members choose to participate. This heightened sense of communication provides direction and eliminates potential problems which could disrupt school improvement efforts. It is this heightened sense of community consisting of "day-to-day professional conversations focused on instructional issues that are the hallmark of effective learning communities" (NSDC, 2008b, p. 2).

Learning Forward also recommends the use of learning communities for administrators. They are encouraged to meet regularly to gain a deeper instructional understanding, work together to critique each other's schools, and learn to use data analysis effectively. This knowledge will enable them to understand and identify ways in which they can help teachers.

Leadership. Staff development that improves the learning of all students requires skillful school and district leaders who guide continuous instructional improvement. Skillful leaders, focused on goals which are aligned with the school and district, know that significant improvements begin with quality professional development which is a critical link between improved student learning and the professional learning of teachers. Leadership comes from many sources, including support staff, teachers, district administrators, school board members, and community members. At the local level, the superintendent, principals, and other curriculum representatives believe in what they are proposing and understand the effect these values and beliefs will have on others and in reaching the intended goals. These leaders insure that resources are distributed equitably throughout the district and continually evaluate to determine their effectiveness in meeting student learning goals. Equally vital to student success is adequate time for learning and collaboration during the workday. These leaders "align district incentives

with demonstrated knowledge and skill and improvements in student learning rather than seat time arrangements such as courses completed or continuing education units earned" (NSDC, 2008b, p. 2).

Distributed leadership among teachers and other employees enables teachers to develop and use their skills in numerous ways as members of school improvement committees. These leaders study the research, attend conferences and workshops, and learn to use proficiently all electronic methods to make their work more useful and efficient. By acquiring and actively using these skills, they model the type of learning required for successful adult learning and collaboration in the twenty-first century classroom.

Resources. Staff development that improves the learning of all students requires resources to support adult learning and collaboration. With the implementation of well-planned professional development, learning communities are created which focus attention on a small number of goals. Learning Forward advocates that the majority of professional development should occur during the workday via collaboration with colleagues; however, educators also benefit by attending state and local conferences and workshops. Learning Forward cautions that results will be fragmented when most of the professional learning occurs off the school campus, away from the school building.

Professional development resources fund trainers, provide coaches and external consultants, and cover the cost of substitutes to cover classes while educators attend workshops and conferences. In addition, funding may be designated to furnish stipends for lead teachers serving as mentors or members of training teams. "NSDC advocates that school districts dedicate at least 10% of their budgets to staff development and that at

least 25% of an educator's work time be devoted to learning and collaboration with colleagues" (NSDC, 2008b, p. 3). Learning Forward also advocates that 30% of the technology budget be used for teacher training in technology. These opportunities to learn, practice what is learned, and plan collegially are crucial if the intended benefits for students are realized. The resources for professional development must be used wisely to make positive outcomes possible for the district.

Process Standards

The process standards call for professional development to be data-driven, evaluated, research-based, appropriate, and collaborative. Using student data assists teachers in determining curriculum priorities, monitoring student progress, and sustaining continuous improvement. Furthermore, the process standards use goal-oriented learning strategies for educators to apply knowledge of human learning in a collaborative environment. Addressing the "how" of professional development, the process standards describe the acquisition of new knowledge and skills and the use of data, evaluation, and research (Rollins, n.d., p. 5).

Data-Driven. Staff development that improves the learning of all students uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement. Data can be used in numerous ways for professional development purposes. Student learning data obtained from various types of tests and student work samples and portfolios are invaluable when determining district and school learning needs. Whether determining the growth a student makes during a year or examining differences in learning among sub-groups, the disaggregation of data can be valuable.

Data should also be used to design and evaluate staff development. During the initial planning of professional development, the planners must identify not only what adults will learn and be able to do, but what the indicators of success will be.

At the classroom level, teachers determine the effect of their professional development on their own students in their own classrooms. Evidence of improvement in student learning motivates teachers and helps sustain their efforts during challenging times. Data analysis can be quite beneficial when examining student work and is another form of professional development. Teachers who use some type of group process to examine student work report that the "ensuing discussions of the assignment, the link between the work and content standards, their expectations for student learning, and the use of scoring rubrics improve their teaching and student learning" (NSDC, 2008b, p. 1).

Teachers must have professional development in data analysis for it to be beneficial in making continued improvement. Teachers and administrators must have multiple opportunities to gain knowledge and skills related to the collection and analysis of data as well as data-driven planning and evaluation.

Evaluation. Staff development that improves the learning of all students uses multiple sources of information to guide improvement and demonstrate its impact. Skepticism over the value of staff development has increased as many teachers and administrators have seen how the quality of staff development varies from year to year. Learning Forward suggests this skepticism can be avoided by making improvement to the quality of all professional development and measuring its effects on what the staff development was designed to influence. Developed with the end in mind, the evaluation process should clearly address the desired outcome, adult learning processes used, and stated

evidence which drives decision making. Evaluation must also focus on what the teachers know and the new skills they acquire, how the learning affects teaching, and how instructional changes affect student achievement. Additionally, evaluators should be asked for evidence as to the effect of staff development on the organization.

Evidence from staff development leaders varies with the audience. For example, school leaders feel pressure to improve student learning from the district and want to know if the recommended staff development makes a difference with their teachers. Likewise, teachers want to know if the staff development is actually improving their work, particularly whether it justifies the changes they are asked to make. Neither party wants to wait several months for test results to know if the changes are beneficial. School board members and state legislators question whether the increased funding is producing a dividend. While the evidence they require may demand more formal designs, these individuals are also affected by what they hear in various other settings, both formal and informal.

Therefore, professional development evaluation must recognize the needs of each group with respect to the evaluation data. A process must be in place both to collect data and to insure that the appropriate audience has the skills needed to interpret and use the data appropriately to reach the intended goals.

Research-Based. Staff development that improves the learning of all students prepares educators to apply research to decision making. To avoid uninformed decisions on staff development based on a sales pitch from the many companies and consultants in professional development, administrators and teachers should know what the educational

research shows before making staff development decisions. It is crucial to know both the content and process of the staff development.

There is confusion as to what the term research-based really means. Teams of teachers and administrators need to study carefully the research claiming to create school reform. This process may take many months of reading, talking and visiting with researchers, and visiting schools that have already implemented the approach. School leaders should compare and contrast students in their own school with students on whom the research is collected to decide if the evidence corresponds with the claims of the research.

Pilot studies, sometimes called action research, also provide a useful means of gathering data on the effects of new approaches. These studies are less scientific than formal research, but they should specify the goals and methods of the program and outline the accepted indicators of success.

Designs and Strategies. Staff development that improves the learning of all students uses learning strategies appropriate to the intended goal. For many educators, staff development is limited to coursework, training, workshops and group presentations. These teachers do not understand that learning also can occur through modes such as curriculum development, analysis of student work, study groups and professional networking. These same teachers also do not understand that training sessions and coursework must contain live or video models of new instructional strategies, be demonstrated in a teacher's classroom, or include other forms of follow-up to become a part of the teacher's repertoire of instructional strategies.

Staff development leaders and providers should make selections based on the intended outcome along with the participants' background knowledge and experience. While new ideas may be shared in a workshop, they are unlikely to bring about change in practice. Neither will a brief after-school workshop nor reading a journal article. However, seeing a live model of the recommended strategy or participating in regular follow-up throughout the year after an extended summer workshop will likely bring about the desired change.

Professional learning can now be accomplished in many ways through the use of technology. Teachers can download lesson ideas and share their own ideas by networking with educators across the world. Learning, through the use of this medium, can be individualized to fit within the framework of the school improvement plan.

Learning. Staff development that improves the learning of all students applies knowledge about human learning and change. Aside from the fact that adult learners have life experiences to draw on, the principle of learning is similar at all ages. For this reason, professional development learning methods should be modeled closely to those that will be used with students.

Effective staff development brings a more in-depth understanding of the topic or idea, its meaning, and its connection to other learning. Adult learners must be given opportunities to practice and receive feedback on their new skills in order for them to become part of the teacher's routine. Additionally, group problem solving, practice, and demonstration may be used to reinforce the learning.

To capitalize on individual strengths and learning styles, professional development should include visible, audible, and kinesthetic learning opportunities.

There should also be individual and group learning experiences and, when possible, a choice of learning activities.

Educational leaders should anticipate and appreciate feelings of anxiety, fear, and anger when change is sought. It is important that leaders listen and problem solve in an atmosphere of trust and respect. Learning Forward recommends that school leaders possess a deep understanding of the change literature and apply its insights when planning and implementing new changes in schools.

Another area that should be given consideration in the change process is the life stage of the individual involved. Different phases of an educator's life may alter availability and interest for additional responsibilities. Staff development leaders should be cognizant of and utilize these educators' strengths and talents.

Collaboration Skills. Staff development that improves the learning of all students provides educators with the knowledge and skills to collaborate. Professional learning must be aimed at improving the quality of collaborative work since some of the most important forms of professional learning occur in group settings. Additionally, the Learning Forward Standards recommend increased teamwork as teachers and administrators work together to plan lessons, examine student work, and analyze data. This social interaction is vital to the success of school improvement.

Typically, this kind of professional learning has not been part of an educator's background preparation and leaders often underestimate its importance. Therefore, it deserves high priority as educators begin to know one another at deeper levels, get clear about the group's purpose and ground rules, surface and address the unavoidable conflict that such work elicits, and become effective at performing the group's work in a manner

that satisfies both the task and interpersonal expectations of participants. Participants should understand that these phases are an important part of group development and that they be given opportunities to learn strategies for addressing problems that arise along the way (NSDC, 2008b, p.1).

Inevitably, conflict will arise when participants discuss their fundamental beliefs about teaching and learning and search for strategies to improve student achievement. Honest conversations must take place in order to reach consensus on long-term school goals and the strategies necessary for obtaining them.

Content Standards

The third and final part of the standards which Learning Forward recommends is the content standards which reinforce content knowledge with new research-based instructional strategies that enable educators to understand and appreciate student needs while holding high expectations for their academic achievement. In addition, this standard emphasizes the need for safe and orderly supportive learning environments that involve families and other community stakeholders. Without each component, an educator's professional development opportunity would not be "results-driven, standards-based, and job-embedded" (NSDC, 2008b, p. 1).

Equity. Staff development that improves the learning of all students prepares educators to understand and appreciate all students; create safe, orderly, and supporting learning environments; and hold high expectations for their academic achievement. Teachers establish a learning environment that is physically and emotionally safe while holding high expectations for academic achievement and assisting students with interpersonal relationship skills. It is especially important to have staff development aimed at these

issues when educators are assigned to levels other than those for which they were trained (for example, high school administrators assigned to elementary schools) and when they are teaching students whose backgrounds differ significantly from their own (for example, white middle-class teachers working primarily with black, low-income families). Educators benefit from staff development opportunities which aid them in understanding their own attitudes on social class, race, and culture and how those attitudes affect their own teaching practices and expectations for student learning and behavior.

Through staff development, all educators gain the knowledge and skills necessary for establishing safe, orderly environments where learning and growth can occur. It assists teachers in developing classroom management skills that support positive interaction and in enabling students to think and manage themselves.

Quality Teaching. Staff development that improves the learning of all students deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately. Effective teachers possess a deep understanding of the subjects they teach. They participate in professional learning regarding these subjects, try to find ways to learn and use improved strategies, seek to learn more about learning, and discover new ways to assess student progress toward academic goals. Teachers need a wide range of methods available to promote and measure learning. Successful professional development efforts should include opportunities for teachers to obtain formative assessment techniques suitable to the subject matter and types of performance mandated in local and state standards.

Family Involvement. Staff development that improves the learning of all students provides educators with the knowledge and skills to involve families and other stakeholders appropriately. Ideally, the education of students can be described as a partnership between the home, the school, and the community. Educators must be knowledgeable as to how parents and community members may serve to help the school. This community partnership should be sustained over time to bring to fruition the intended improvements (NSDC, 2008b).

Variables

The variables in this study included teacher's perceptions of professional development experiences, teachers' gender, teacher's experience, subject(s) taught, and the size of the district. This study focused on professional development as defined by Learning Forward and described by the Learning Forward Standards.

This study also looked at the relationship between perceptions of professional development and teachers' experience. Does the number of years a teacher has taught impact how he/she regards the effectiveness of his/her professional development? A positive correlation between teaching experience and higher student achievement has been consistent in research. Higher student results are seen with teachers who have five or more years of teaching experience (The Center for Public Education, 2005).

Research suggests that the quality of a teacher is the most important predictor of student success (Darling-Hammond, 1998). Sanders and Rivers (1998) found that students' achievement levels increased as much as 53% when taught by a highly effective teacher (p. 3). Wei, Darling-Hammond, and Adamson (2010) state, "Research shows that teacher quality is the single most powerful influence on student achievement" (p. 8).

Schools can be transformed when an environment exists in which teachers embrace new and improved forms of professional development. In a report prepared for the Planning and Evaluation Service of the U.S. Department of Education (1998), Hannaway and Kimball found that "Districts are important players in standards-based reform" (p. 19). Large districts "appear to be better able to promote or facilitate reform than smaller districts, probably because they have greater specialized areas of expertise, such as dedicated units for assessment and professional development" (p. 19). Consequently, the structure of larger districts may be more effective than the structure of small districts.

While numerous studies have been conducted on the effect of a teacher's gender on a number of other variables, this researcher found no data relating teacher gender to professional development. However, since differences have been found between men and women in terms of other evaluation-related variables (Barley & Phillips, 1998; Hahn & Litwin, 1995; Li, 1999), gender was included as a variable in this study.

History of Middle Level Professional Development

The preparation and continued professional development specifically for middle school teachers have not always been available or considered imperative. According to the National Middle School Association (2003), in their landmark publication *This We Believe: Successful Schools for Young Adolescents*, a "school's organization, curriculum, pedagogy, and programs must be based upon the developmental readiness, needs, and interests of young adolescents" (p. 1). Therefore, the only way middle level educators can fully prepare and maintain themselves to consistently provide quality, effective programs

is to glean knowledge about how to engage, support, understand, and instruct the evolving adolescent.

Historically, the intermediate level between elementary and high school was called junior high. In the late 1960s, the middle school movement began in an effort to improve the transition of the dependent maturing learner into a responsible and independent scholar (Elkind, 1998). Since adolescents have dissimilar rates of growth, the middle school concept sought to identify and address the unique needs of students while enabling educators to "build a thorough underpinning of content, pedagogy, and the connections and interrelationships of academic disciplines" (National Forum to Accelerate Middle Grades Reform, as cited in Andrews & Anfara, 2003, p. 391). According to Elkind (1998), when making decisions on curriculum, teaching skills, and assessment of students, a comprehensive understanding of students' developmental needs is the most critical consideration. For the middle school educator, this means more than learning abstract techniques; there must be daily integration of professional development directly linked to the goals of the school for teacher and student success (NMSA, 2003).

In the 1970s, professional development for middle school teachers centered on the middle school organization's emphasis on teaming, flexible scheduling and exploratory courses (Andrews & Anfara, 2003). During the 1980s and 1990s, varied models of instruction and assessment tools were stressed in order to promote a shared collaborative vision for student learning (p.125). With the framework for the middle school concept set, the new millennium brought attention to subject-specific content as well as student and teacher accountability. As the emphasis on accountability increased, the federal

government began to consider mandates that would encourage targeted decisions about student performance.

In 2006, the Southern Regional Education Board (SREB*)* sponsored *Making Middle Grades Work*, the nation's first large-scale effort to raise student achievement in the middle grades. This effort-based initiative holds the premise that the majority of students can be successful at or above grade-level when the school environment motivates students to succeed: "The primary mission of *Making Middle Grades Work* (MMGW) is to create a culture of high expectations and continuous improvement that prepares middle grades students for challenging high school studies" (SREB, 2006, p. 1). Included in the conditions is the idea that school leadership supports what and how teachers teach by providing common planning time and professional development aligned with school improvement plans and MMGW key practices. Key practices are: (a) an academic core aligned to what students must know, understand, and be able to do in order to succeed in college-preparatory English, mathematics, science and social studies courses in high school; (b) a belief that all students matter; (c) high expectations and a system of extra help and time;(d) classroom practices that engage all students; (e) teachers working together; (f) support from parents; (g) qualified teachers; (h) use of data; (i) use of technology for learning; and (j) strong leadership (SREB, 2006).

Over a decade ago, professional development experts proclaimed that the role of the central office staff would have to undergo a radical change for professional development to be powerful and effective, leading to increased student learning. The new role means central office personnel assist school level personnel in designing, managing, and implementing improvement efforts. Central office members involved

include those responsible for curriculum, instruction, professional development, teacher quality, student success, and mentoring. Their responsibilities include guiding the school staff to make intelligent decisions on professional development, providing research and modeling best practices, allocating resources to support school learning plans, coordinating efforts in and between schools to support collaborative professional learning, and monitoring professional development implementation throughout the district (*Journal of Staff Development*, 2009).

District support is critical to ensure teachers become highly qualified teachers who understand and effectively teach middle level students by acquiring expertise in their content area and having access to quality professional development. Johnson (2001) reports the central office staff is one of the most under-utilized resources available as local schools attempt to improve student achievement. He maintains that central office staff can provide the missing knowledge and skills at the school site.

A study on central office transformation was recently published by researchers from the Center for the Study of Teaching and Policy at the University of Washington (Honig, Copland, Rainey, Lorton, & Newton, 2010). This study, supported by the Wallace Foundation, contributed significantly to knowledge of the ways central offices matter to "fundamental goals of teaching and learning improvement, and provide important guidelines for practitioners interested in strengthening central office leadership for realizing ambitious educational outcomes" (p. 117). Findings indicate that improving teaching and learning as a district requires leadership throughout the district to create a system of excellent schools. In other words, the entire central office staff is charged with orienting their work "in meaningful ways toward supporting the development of schools'

capacity for high-quality teaching and expanding students' opportunities to learn" (p. 118). Central office leaders are required to (a) continuously learn from their work; (b) be attentive to whether the desired outcomes in learning are realized; and (c) question "why" or "why not." Consequently, the focus of everyone's work truly is on learning.

DuFour, DuFour, and Eaker (2008) offer four keys to assist central office staff in employing effective leadership to improve professional development. These include using "every aspect of effective change processes and presenting compelling rationales for moving forward," communicating "priorities effectively, consistently, and with one voice," limiting "initiatives to allow for the sustained focus essential to a change initiative," and helping "teachers and principals build their collective capacity to raise student achievement by embedding ongoing professional development in the routine work of every educator" (pp. 345-371). These authors believe that using this approach "honors the expertise and professionalism of the district's educators" (p. 371).

Professional Development Requirements

This section contains information on education laws and policies, which affect professional development. This guidance comes from both federal and state sources. One well-known mandate that emphasized reform for teaching and learning was the Goals 2000: Educate America Act. This legislation specifically provided a national framework for education reform by promoting research, consensus building, and systemic changes for equitable educational opportunities and high levels of student achievement. For teachers, this act was significant because of its recognition that educators need quality professional development. Goal 4, Objective (B) (i) states, "All teachers will have continuing opportunities to acquire additional knowledge and skills needed to teach

challenging subject matter and to use emerging new methods, forms of assessment, and technologies" (Goals 2000, p. 2). This important aspect was accentuated with the creation of the No Child Left Behind Act of 2001 (NCLB*)* as it recognizes that optimal student performance begins with quality teacher preparation. This historic document included, for the first time, provisions for federal funding with the following mandates for all professional development:

> (a) it must relate to the school improvement plan, (b) all activities must be research-based, (c) it must be tied back to student achievement, (d) it must include activities related to the individual teacher's subject area, (e) all activities must be long-term and ongoing for enhancement of classroom instruction, and (f) all professional development activities must have evaluations conducted on them. (NCLB, 2001, p. 2)

In November 2006, all 50 states, the District of Columbia, and Puerto Rico were given a High, Objective, Uniform State Standard for Evaluation (HOUSSE) option for experienced teachers. ESEA, Section 9101 (23), which defines "highly qualified teacher," spells out the minimum requirements for HOUSSE:

> (a) measure grade appropriate subject-matter knowledge and teaching skills, (b) be aligned with K-12 learning standards, (c) provide objective, coherent information on teachers' subject matter competency, (d) be applied uniformly, (e) take into consideration, but not be based primarily on, the time a teacher has been teaching a subject, and (f) be made available to the public. (Birman et al., 2009, p. 16).

At the state level, this law meant redefining the status of thousands of employees by evaluating licensure criteria. All teachers in North Carolina schools which receive Title I funding and teach a core academic subject must be highly qualified according to the NCLB definition. As a result, in the 2006-2007 year, North Carolina developed its *HOUSSE* standards and revamped its continuing education requirements to ensure ongoing and purposeful professional development in content-specific areas.

Currently, North Carolina requires K-8 teachers to earn fifteen continuing education units (CEUs) every five years to maintain licensure (North Carolina General Assembly, n.d.). Five of these CEUs are earned by being a full-time teacher; for all K-8 teachers, three CEUs must be in the area of reading. In October 2007, the State Board of Education (SBE) mandated that another three CEUs be earned in the teacher's respective content area (North Carolina State Board of Education, 2007). This requirement includes teachers in all grade levels (K-12).

North Carolina's framework for professional development standards aligns with the federal guidelines for teaching and learning. The state standards, based on research by Learning Forward, are introduced with the following vision statement:

> Classroom practice and school leadership in North Carolina will be improved through tailored, intensive professional development that includes follow-up, support, practice, feedback, and evaluation. It is a collaborative effort that provides every student access to a competent, caring, highly-qualified teacher. All fiscal and human resources within the educational community support classroom instruction and interactions that prepare students to thrive and contribute to a complex, dynamic, global, and multi-cultural society. Activities

> result in implementation of classroom practices that lead to improved student achievement. (*North Carolina Twelve Standards*, 2008, p. 1)

While federal and state laws clearly affirm the need for quality professional preparation and continuing development, local education agencies face challenges in bridging the mandates between law and teacher need. The International Center for Leadership in Education (Daggett, 2008) maintains that balancing rigor, relevance, and relationships are necessary for maximum student achievement. It takes significant time, materials, and funding as well as planning to ensure that curriculum leaders, administrators, and teachers obtain targeted professional development that will enhance learning rather than fulfill random, mandatory continuing education requirements. Similarly, the National Middle School Association (NMSA) states "The curriculum of a successful middle level school must be relevant, challenging, integrative, and exploratory, from both the student's as well as the teacher's perspective" (NMSA, 2003, p. 19). Skillful middle school teachers intertwine the knowledge (curriculum) with student interaction (action) to insure students are valued and treated fairly and equitably.

The Reality

Effective professional development is embedded in the analysis of student achievement and expressed teacher need. It is not something which changes as fads come and go or when new mandates are issued; rather, professional development is ongoing, a sustainable process of building collaboration, generating and sharing professional knowledge, using current research, and informing the everyday work of leaders and teachers (Darling-Hammond, 1997; Elmore, 2002; Stigler & Hiebert, 1999). In order for educators to value professional development opportunities, the professional development

must address content knowledge, provide adequate materials and essential resources, and equally important, teachers must be provided the time to integrate the new skills in their curriculum.

Thus district and local school support is crucial for teachers, both to participate in and to incorporate new ideas into their daily instruction:

> Virtually all reform efforts are calling for changes in the education system that will help students to develop rich understandings of important content, think critically, construct and solve problems, synthesize information, invent, create, express themselves proficiently, and leave school prepared to be responsible citizens and lifelong learners. (Borko & Putnam, 1995, p. 37)

To allow teachers to adapt their practices to meet the needs of their students' learning and the mandated curriculum, professional development must enable teachers and support their inquiry into subject matter, student learning, and teaching practice (Carpenter et al., 2004).

Teachers whose pedagogical content knowledge is well developed understand how students typically learn a particular subject. This knowledge allows them to anticipate parts of the curriculum which students are likely to find difficult, as well as to possess a repertoire of strategies to address problem areas. These same teachers are typically good listeners to their students, focusing carefully on their students' understanding of the subject (Fenneman, Carpenter, Franke, & Carey, 1992). Kennedy (1998) asserts that teachers first have to understand the content of subject matter before they can successfully assist students in understanding particular content. Additionally, when teachers focus on *how* students learn subject matter, staff development programs

will aid teachers in learning *what* students should be learning. As a result, teachers are cognizant of when students are learning; they will also recognize signs of confusion which students may display.

Professional development should be designed to help teachers keep or rediscover their excitement and dedication to teaching (Guskey, 1995). Guskey further asserted that teachers need assistance in building and refining the skills of their craft to take full advantage of their "powerful, and often untapped, influence of students" (p. 116). Pate and Thompson (2003) explored the need for content-specific professional development and documented educators who stated that without it they would have been unable to make their classroom become a more constructive learning environment. In fact, because the professional development was content focused, they felt well-informed about "curricular and instructional alternatives, assessments, learning styles, and adolescent development" (p. 133).

In addition to the individualized impact which content-specific professional development has, Pate and Thompson (2003) also stated this form of learning invites collaborative discussion "within a community of learners" (p. 140). By collaborating, educators discover instructional strategies, test ideas together, "critically examine new standards being proposed, and revise curriculum" (Corcoran, 1995, p. 1). Diaz-Maggioli (2004) agreed that by providing teachers the time and materials needed to reflect together on teaching methods, and allowing them to share their teaching styles, the very act of teaching will be transformed. As a result, improvements will occur. While professional development opportunities are often developed on a sound methodology, educators must be offered a plethora of materials and resources that will enable them to manipulate and

blend theories into viable products for practical classroom application. Pate and Thompson (2003) agreed that teachers must take something from professional development and use it to make changes in their teaching. However, as Loucks-Horsley et al. (2003) stated, "More often than not, these resources are scarce and stand as a barrier to results-driven and job-embedded professional development" (p. 71-72). Of these resources, the most predominantly evaluated as necessary and essential are printed, technological, human and financial.

The most affordable and accessible professional development resource is printed materials. They are often developed by education corporations who seek to publicize "structured activities generally focused on a specific topic" (Pate & Thompson, 2003, p. 126). They offer educators engaging and creative consumables that serve as activators or guided practice during instruction. Other printed materials are downloadable so that instructors may personalize data to meet individual classroom needs. Printed materials also include books and articles that update teachers on current research in learning theories, such as brain-based models or differentiated instruction philosophies.

Technology is the best tool to engage the twenty-first century learner since students spend an average of 6.5 hours a day with media (Apple Classrooms of Tomorrow Today, 2008). ACOT² (2008) also reports that 87% of 12 to 17 year olds (21 million young people) are Internet users, an increase of 24% since 2000. Therefore, it must become a mandated resource for educators. In fact, the issue is not whether technology should be used in schools; rather, the emphasis currently is to ensure that new opportunities for learning and promoting student achievement through the use of technology are effectively implemented (Rodriguez, 2000). Resources included in this

area encompass Promethean™ boards, computers, Internet access, wikis, blogs, online learning classes, webinars, pod casts, flip cameras, virtual programs, and software that are adaptable to individual content areas. To meet the needs of students growing up in today's technological society, teachers must have professional development opportunities to learn how to effectively use these instructional tools to employ teaching methods that engage and inspire students to learn.

Human resources are a vital tool for both experienced and beginning teachers since it is unlikely that teachers will sustain innovations in their instruction without the "support, trust, and involvement of colleagues" (Speck & Knipe, 2005, p. 3). For the middle school teacher, human resources are utilized through teaming and professional learning communities (PLCs). This collaboration provides educators with the empowering opportunity to individualize the sort of professional development they seek since "Middle school teachers are the most knowledgeable about their own needs and the needs of their students" (Pate & Thompson, 2003, p. 129).

Perhaps the most important resource for educators is funding since a major influence in programs supporting teacher learning is financial resources (Drago-Severson, 2004). In essence, without financial resources, educators would have limited access to printed materials, technology, and human resources. Typically, professional development monies are derived from the Title II, Part A (Teacher Quality) funding of the No Child Left Behind Act of 2001, which is designated for improving teacher quality. Title II funds can be used, for the most part, at the district's discretion. However, most districts use the majority of the funding for class-size reduction, in some districts, as much as 80% (South East Center for Teacher Quality, n. d.). In addition, federal law also

allows five percent of Title I funding to be used for professional development. Furthermore, NCLB requires that schools which have been identified for improvement must spend 10% of their Title I budget on professional development. Professional development spending is estimated at between 1% and 6% of district expenditures (Hertert, 1997; Killeen, Monk & Plecki, 2002; Miles, 2003).

According to the National Center for Education Statistics (2008), professional development spending for fiscal year 2006 (the last year statistics are available) totaled about 20 billion dollars for America's public schools. Budget deficits leave limited state dollars available to help with teaching quality and schools are left struggling to pay for high-quality professional development for all teachers.

Another resource of importance to educators is that of time, specifically, the allotment of more time for professional learning. Teachers need time themselves to be learners - to learn, to practice, implement, observe and reflect - if student achievement is to improve (Lindstrom & Speck, 2004). Corcoran (1995) proposes that if teachers are to revise curriculum by critical examination of new proposed standards, more time will have to be allotted for them to work individually and collegially. Time and learning how to more wisely use time are crucial to educators. Opportunities are needed for teachers to develop new approaches, master use of the strategies, and reflect on the new approaches to working with children. Further, Corcoran acknowledged that skills needed to teach to high standards are complex, thus requiring teachers to improve their subject-matter knowledge, develop new assessments to understand students' knowledge, and assist students in applying their knowledge to real-world situations.

The purposes for which educators need time vary. Teachers may need time to meet as a grade level or department, to collaborate with those teaching the same content, or to examine data related to student work. The entire educational community may need to convene to deal with school-wide issues. Regular meeting times and wise use of the professional learning time will help educators who are searching for answers to student issues, learning challenges, or who want to increase their knowledge of research-based instructional strategies (Gleason, 2010).

Joyce and Showers (2002) purported that educators must have time devoted toward curricular and instructional strategies that will insure students not only gain a content and skills knowledge base, but also obtain a knowledge base that will enhance their future learning ability. While understanding that time is a needed commodity among educators, providing that time is challenging.

In fact, limited time is available for staff development in most districts. After examining the school-based decision making process, Guskey and Peterson (1996) noted that the demands on teachers leave little time for keeping abreast of the latest research for ways to improve student learning. Often, good teachers use their personal time to improve their knowledge and skills. At the heart of most school improvements are dedicated teachers who spend innumerable voluntary hours in staff development activities (Levine & Broude, 1989). According to a 2001 survey, 35% of all teachers said they participated in a system-sponsored professional development activity during the summer (*The Status of the American Public School Teacher*, 2000-2001). This means that the remaining educators either obtained the desired professional development that

met their needs during the school year, or did not participate in professional development at all.

Since more rigorous accountability policies and more challenging student performance standards call for significant change in instructional practices that cannot be accomplished with modest, short-term professional development efforts, time is a factor that must be at the forefront during district planning. The National Education Association (NEA, 1994) recommended that 50% of teachers' time during the workday be given to professional development. The National Staff Development Council (Sparks & Hirsch, 1997) recommended that at least 25% or more of an educator's time be devoted to professional development and collaboration with colleagues. In 2000, a survey of the Council's members revealed no districts reported that at least 25% of the time was devoted to professional learning. Furthermore, 81% of the people surveyed said that less than five percent of a teacher's work week was devoted to professional learning.

Zepeda (2010) avowed that "Teachers need the opportunity and time to work with one another; they will learn more from sustained discussion on classroom practices, coaching opportunities, and the formal and informal mentoring they can provide to one another" (p. 23). Sparks and Hirsch (1997) proposed that an effective plan of learning for teachers is one that is embedded within the school day, offering teachers time to learn and collaborate, thus improving student achievement and sustaining change over time. Learning is connected to both immediate and real-life problems which teachers and administrators face when it is job-embedded. This is based on the theory that learning is most powerful when it occurs in a given situation being faced by the learner, which

requires “immediate application, experimentation, and adaptation on the job” (Sparks & Hirsch, 1997, p. 52).

In 2002, Sparks asserted that for middle school teachers, “Professional development opportunities that address academic content and are integrated into the daily life of the school are more likely to be sustained and to have significant impact in the classroom” (as cited in Pate & Thompson, 2003, p. 129). Speck and Knipe (2005) argue that for teachers to have quality time for professional development, schools must either structure time for professional learning within the regular school calendar, or they must expand the school calendar. However, for most schools, implementing professional development during the school day means the organizational culture will need to undergo deep changes as will the perspectives of the educators who work within these institutions.

Joyce and Showers (2002) summarized their field work for *Student Achievement Through Staff Development* by maintaining that if teachers were not given time to learn and work collaboratively toward their goals all other efforts to follow would be defeated. Without recognizing time as a substantial component in incorporating, practicing, collaborating, and assessing professional development opportunities, districts are only partially effective and educators are left with tons of material unapplied. For students, new opportunities and strategies that could significantly impact their learning are either unrevealed or dismissed.

In the last decade, several significant research studies have shown that the impact of professional development on teaching quality and student achievement is affected by both its length and focus. When teachers averaged 49 hours per year of professional development focused entirely on the curriculum they taught, student achievement

increased by 21 percentage points in one school year (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Wei, Darling-Hammond, and Adamson (2010), in Phase II of a Three-Phase Study on Professional Development in the United States, show that some progress is being made by providing increased support and mentoring for new teachers.

> In 2008, teachers nationwide had fewer opportunities to engage in sustained professional learning opportunities than they had four years earlier. They were also half as likely to report collaborative efforts in their school as teachers did in 2000. (p. 1)

Wei et al. (2010) further state that American teachers and teachers in other nations participate in about the same number of professional development activities. However, according to survey findings, this kind of "intense, collaborative, content-rich, and practice-focused professional learning, which leads to better student outcomes" is not usually found in American schools and school districts (Wei et al., 2010, p. 1). They conclude by calling on the United States to support teachers to succeed, thereby enabling American students to succeed.

Impact of Professional Development on Student Achievement

While many scholars stress that professional development is an essential part of an educator's métier, many administrators and stakeholders wonder if the needed time, materials, and resources actually impact student achievement. After all, justification for changing a school calendar or allocating monies to purchase technology or provide substitutes while teachers attend content-based seminars and workshops must be provided since federal and state budgets get tighter every day. But how does a district gauge the success of a particular professional development in order to defend its needed resources?

What type of data measures the success in one classroom versus that of another? And does a school or district end a particular professional development because student achievement is not equally stellar in all schools?

Thompson (2003) maintained that professional development does impact student achievement even though one can never identify the exact initiatives, which contributed to the improvement nor how much they contributed. However, a significant rise in several different indicators of education system performance suggests that many professional development programs have been successful. Through a mathematics study in California, Cohen and Hill (1998) found that professional development directly related to subject matter that students are to learn, the learning styles of the individual student, and the methods of instruction were related to changes in student achievement. Haycock (1998) discovered that low-achieving students increased their achievement level by as much as 53% when taught by a highly effective teacher. Additionally, Wenglinsky (2000) maintained that certain types of professional development may impact student achievement; those associated with better student performance include "professional development working with special populations, in higher-order thinking skills for math, and in laboratory skills for science" (p. 4).

On the other hand, some writers maintain that professional development is too subjective to be measured. Hein (as cited in Darling-Hammond and Ball, 1997) concurred by stating that it is both time consuming and costly to connect student learning and teacher behavior. According to Learning Forward, it may prove difficult to show a connection between staff development and student achievement since research designs fail to consistently show this connection (Killion, 1999). Rather than trying to calculate

specific numeric data, Hein suggested looking "for evidence of change in teacher behavior and attitudes that result from staff development" (as cited in Darling-Hammond & Ball, 1997, p. 1). Darling-Hammond and Ball (1997) acceded that the interaction between teacher and student in the classroom every day is what matters most, maintaining that when determining student achievement, the most important factor is teacher expertise. In fact, teacher quality explains 42% of student achievement variations, which is nearly twice as much as parents' education, which accounts for 24%. Darling-Hammond and Ball (1997) further asserted that other background factors - poverty, language, and family characteristics - account for 26% of student achievement.

While experts hypothesize the level of impact professional development has on student achievement, the best authority to ask is the teachers who receive and implement the learning opportunities. Pate and Thompson (2003) believe teachers benefit from internal professional development when learning information and strategies specific to their own school and classroom needs. On the other hand, offering middle school teachers the opportunity to network with other educators through external professional development allows them to gain knowledge and skills for which they were previously unaware (Pate & Thompson, 2003). These opportunities, often called professional learning communities (PLC), make the collaborative process take an entirely different approach since it is the individual school's mission statement on which the basis for school improvement planning, staff development, and budgeting are formed (DuFour, DuFour, & Eaker, 2008).

Pate and Thompson's (2003) middle school study referenced comments of teachers who participated in staff development days, professional learning communities,

and internal professional development workshops. Many educators agreed that they all viewed these opportunities as valuable to support student learning. One middle school science teacher observed it was only after participating in the school's reading professional development day that she realized all of the ways in which reading instruction was being addressed by the entire staff. It took this opportunity for her to understand that reading instruction requires assistance from everyone on staff (Andrews & Alfara, 2003). This time for discussion, sharing, and reflection helps teachers to understand the common threads needed to weave student success. Each department becomes a unified force that fulfills the school's vision for increased student achievement.

Research published in August 2010 described a new survey tool, which has been developed and is being disseminated and offered for use in measuring and reporting the quality of teacher professional development. The National Science Foundation supported this web-based tool as part of the Surveys of Enacted Curriculum (SEC) and it "allows educators and evaluators to gain a comprehensive picture of the professional development received by teachers over a given period of time (e.g. one year or one semester), and then to related quality measures to intended outcomes (e.g. improving practice or raising student achievement)" (Blank, 2009, p. 56). The pilot study was comprised of 500 middle grades teachers, across four large school districts that were part of the National Science Foundation Math and Science Partnership (MSP). Key findings and differences among the treatment group and the comparison group were all statistically significant after the two-year, longitudinal study. The evaluation study analysis revealed a relationship between quality measures of professional development

and instructional content being taught: "Two measures of the quality of professional development were found to be positively associated with greater alignment of instruction to standards: coherence with curriculum being taught by teachers and focus on content" (Blank & Hill, 2009, p. 56).

Chapter Summary

Chapter Two provides a historical overview of middle school professional development and its need to focus on meeting the ever-changing needs of the adolescent. By offering diverse courses, flexible scheduling, and teaming, schools promote the need for collaboration and targeted training that promotes student achievement in an age dominated by federal and state testing.

However, reality dictates that testing standards and student needs are not necessarily parallel. There is a gap between expected learning growth and individual student need that teachers unearth in the classroom every day. In order to bridge the disparity, teachers need time, resources, and funding to attend, conduct, implement, and analyze professional development offerings.

While the impact of professional development on student achievement is debated among experts, teachers are the ones who ultimately witness individual student growth. Teachers are the ones who unite a school's vision and bond a faculty vigilant on making a difference in students' lives. Not providing teachers with the needed tools to achieve this goal denies all middle school students the opportunity to exhibit their full potential.

Chapter Three contains the purpose of the study and the research questions, the conceptual framework, and a description of the sample. Variables and instrumentation are discussed along with data collection methods and data analysis procedures.

CHAPTER THREE: DESIGN AND METHODOLOGY

The purpose of this study was to examine teacher perceptions of the extent to which the professional development they received during the 2009-2010 school year contributed to student achievement and positively affected classroom practices. The study also examined the extent to which teachers believe their professional development experience was aligned with Learning Forward Standards, which have been adopted for use as the professional development standards by North Carolina. This chapter is divided into nine sections. These sections include: research questions, research design, conceptual framework, sample, variables, limitations of the study, instrumentation, data gathering methods, data analysis, and conclusion.

Research Questions

The following questions were addressed in this study:

1. To what extent do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year was aligned with the Learning Forward Standards?
2. In what ways do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement?
3. Is there a relationship between western North Carolina's middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?
4. Is there a relationship between western North Carolina's middle school teachers'

perception of the impact of professional development on their classroom practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?

5. What do western North Carolina's middle school teachers perceive as their greatest professional development need?
6. What professional development experience do western North Carolina's middle school teachers say is the most beneficial experience of their career?

Research Design

This study analyzed quantitative and qualitative data gathered from a researcher-designed survey to determine teachers' perceptions of staff development and the resources provided for it by their district. The types of quantitative data analyzed included teachers' gender, teachers' years of experience, subject(s) taught and size of the district, as well as the fixed item responses (e.g. Likert scale items) on the survey. Data on each of these variables were obtained from the survey, excluding district size, which was obtained from the North Carolina Schools Report Card. The types of qualitative data analyzed were the most beneficial professional development experiences which the teachers described as well as those teachers believe impacted their classroom practices and student achievement. Additionally, teachers were asked to identify their greatest professional development need.

A focus group was convened after analysis of the survey data to gain further insight into the teachers' perceptions of their professional development experiences. The researcher planned to conduct interviews with teachers in the district most closely aligned with the standards. In order to identify the district to utilize for the focus group,

responses were analyzed by district. Because the lower numbers on the Likert Scale indicated an alignment to the Learning Forward Standards, the district with the lowest total indicated the closest alignment with the standards. When each response was totaled, District 7 had the lowest total. However, since this was the researcher's district of employment as a Human Resources director, it was eliminated to increase the validity of the study. As a result, respondents from District 2, the district with the second lowest total (second most closely aligned) were used as the focus group members.

Conceptual Framework

The context, process, and content standards (Appendix A) from the Learning Forward Standards provide the conceptual framework, which guided this study. Learning Forward's purpose focuses on advancing "effective practices at the federal, state/provincial, and local levels" (NSDC, 2008a, p. 1) in order to provide universal guidelines for education agencies. These standards address the context, process, and content standards of professional development, which improve the learning of all students. The context standards are based on the premise that all schools should have active learning communities designed around the school and district goals. Both school administrators and district leaders should ensure continuous instructional improvement. Resources should be available for supporting teaching, learning, and improvement.

Secondly, Learning Forward recommends that all professional development be data-driven, evaluated, research-based, appropriate, and collaborative. To monitor progress and sustain continuous improvement, the use of student data is vital. Data, derived from multiple sources, should guide improvement efforts and illustrate the impact of professional development. Learning strategies should be appropriate to the learning

goal. Professional development should teach educators to apply research to decision making. Emphasis should be given to teacher learning and changes while insuring the knowledge and skills for collaboration are provided.

Finally, the content standards focus on quality teaching, equity, and family involvement. Emphasis is placed on preparing educators to create safe, orderly environments, understand and value all students, and hold high academic expectations. The educational process for students should involve families and other community stakeholders. All components of the standards are critical if an educator's professional development opportunities are to be "results-driven, standard-based, and job-embedded" (NSDC, 2001, p. 1).

Using this conceptual framework, teachers' perceptions of their professional development experiences, including resources (time, materials, funding), content, and delivery were correlated with teachers' gender, teachers' years of experience, the subject(s) taught, and size of the district. This framework also allowed the researcher to gather valuable information from teachers' descriptions of their most beneficial professional development, as well as how well those experiences align to the Learning Forward Standards. Additionally, teachers were asked to identify their greatest professional need. This information allowed the researcher to make recommendations for future research, practice, and policy.

Sample

North Carolina is divided into eight regions, referred to as Region 1 through Region 8, by the Department of Public Instruction. The target population for this study was the 1,020 middle school teachers from the 21 public middle schools containing

grades six through eight in Region 8 of western North Carolina, whose superintendent granted permission for his/her district to participate. This study examined the perceptions of western North Carolina's public middle school teachers on the quality of professional development opportunities provided to them by their respective districts through the use of a researcher-designed survey and a follow-up focus group. Their perceptions were examined to determine the extent that these professional development experiences were aligned to the Learning Forward Standards.

Variables

The dependent variables in this study were the teachers' perceptions as identified on the survey. The independent variables in this study were the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district.

Limitations of the Study

Using each district's website, the researcher obtained the names and email addresses of the teachers in each participating school. Since the study was designed to examine middle schools' teachers' perceptions of professional development, it is limited to the 21 middle schools in eight districts, which contain only grades six through eight. Of the 1020 teachers in the target population, email addresses were available for 862 of them and they were invited to participate in the study. The study does not include charter, alternative schools, private schools, or other non-traditional schools. There are several inherent limitations in survey research that apply to this study. The response rate (26.7%) may not be large enough to justify a valid study (Dillman, 2007). The study was limited to teachers' perceptions of the professional development experiences; therefore, the impact of professional development on the teachers' practice may not be determined.

This study was limited to the scope of the selected standards examined in this study and the researcher may not be able to determine whether the teachers understood the questions they were being asked. Additionally, accuracy of recall is a limitation since some of the professional development opportunities in which teachers participated may have occurred almost one year earlier.

This study was delimited to the 2009-2010 academic year. Since this study delimits the participants to one region from only public middle schools with grades six through eight in western North Carolina, the study results are not generalizable to other states, regions, or types of schools. Since the study was conducted in the fall of 2010, it does not include teachers who left their school location at the end of the 2009-2010 school year.

Instrumentation

A researcher-designed survey (Appendix B) was administered electronically through the survey program Zoomerang™ and provided data relevant to the research questions. The survey questions were based on findings from the literature review as to what constitutes high-quality professional development, relying heavily on the Learning Forward Standards.

To determine the reliability of the researcher-designed survey instrument, a Cronbach's alpha was run. The reliability coefficient (Table 1) for the survey was 0.846, which is a moderately strong value of Cronbach's alpha.

The survey included demographic information identified as pertinent to the study: teachers' gender, teachers' years of experience, subject(s) taught, and the size of the district. The survey contained a list of questions provided specifically to address

professional development experiences of the teachers. Based on a five-point Likert scale, the questions addressed the respondents' perceptions of professional development in their respective schools. Additionally, four open-ended questions were included in the survey.

Table 1

Reliability of Survey Instrument

Cronbach's alpha	Cronbach's alpha based on standardized items	N
.846	.855	38

Two members of the dissertation committee reviewed the survey and provided feedback. The researcher-designed survey was reviewed for conciseness, readability, clarity, and congruence with the standards by six administrators in the researcher's district (Appendix B). These included the superintendent, the assistant superintendent of curriculum and instruction, the director of research and accountability, the director of elementary school curriculum, the director of secondary curriculum, and the director of professional development. All of these individuals had experience as teachers and were knowledgeable of professional development; five of these individuals worked as teachers and/or assistant principals or principals at the middle or high school level. These administrators were asked to complete a Feedback Form (Appendix H) upon completion of their review. One of them suggested changing question number 8 to read "If you participate in a PLC…" rather than "If you have a PLC..." which was incorporated into

the survey. Another accepted suggestion was adding "Thank you for participating in the survey" at the beginning of the survey.

Following these suggested revisions, the survey was piloted with four middle school teachers in an adjoining county. The adjoining county is not included in Region 8 of North Carolina and was not included in the final study. First, an informational letter requesting that teachers be allowed to participate in a pilot test survey was sent electronically to the principal (Appendix C) along with an Informed Consent Form (Appendix D) requesting permission for the four teachers to participate in the pilot test. Upon gaining permission from the principal, an electronic pre-notice letter was sent to the selected teachers with directions on completing the pilot test (Appendix E). These teachers were also asked to complete and return a Feedback Form (Appendix F). One language arts teacher, one mathematics teacher, one science teacher, and one social studies middle school teacher agreed to pilot test the survey. Instructions for the pilot survey and a list of evaluative questions (Appendix F) were adapted from Eastridge (2000). The instructions and evaluative questions were attached to the electronic survey in order to receive comprehensive and methodical feedback. The questions were:

Are any of the questions poorly written or unclear?

Are any of the questions too wordy?

Do any of the questions contain technical/confusing language?

Do any of the questions need clarification?

How long did it take to complete the survey (in minutes)?

What suggestions do you have to improve the survey?

On the first four questions, the teachers answered "No." Only one teacher made suggestions for improvement. A suggestion was to add "Skip to the next question" on questions 6, 7 and 8 if the answer was "Don't Know," and similarly, on question 9, if the answer was "No," add "Skip to question 10." When asked how long it took to complete the survey, responses ranged from seven to 18 minutes, with an average time to complete the survey of 15 minutes. None of the four teachers had suggestions for improvement.

The third step in the process included the use of two committee members in reviewing and providing feedback on the survey. These responses were used to revise the survey, as needed. The pilot survey served to increase the validity of the study and to ensure that the survey response time was low for the respondent.

As recommended by Creswell (2005), the results of the pilot study were used to determine reliability and validity of the instrument and to assist in making informed revisions based upon the test participants' written feedback. This pilot contributed to the clarity and readability of the survey questions.

Questions for the focus group were designed around the same content as the survey questions but with added depth. Questions included opportunities for teachers to expound on the effect of their use of student data as a school and/or district, to describe perceived strengths and weaknesses of their PLCs, and to reflect on their individual professional development programs. The open forum allowed the members to share their own thoughts and add feedback to the comments given by other focus group members.

Data Gathering Methods

Following the pilot study and pursuant revisions, each superintendent in the western region of North Carolina who had 6-8 middle schools in their district was sent a letter (Appendix I) explaining the purpose of the survey and requesting permission to survey teachers in the respective district. A superintendent's informed consent form (Appendix J) was enclosed.

All public North Carolina school districts provide their teachers with individual email accounts and a teacher computer with Internet access. The researcher obtained from the school's website in each district where permission was obtained, a copy of names and email addresses for the district's middle school teachers.

The researcher used recommended methods to insure a high return rate, specifically, a pre-notice email and good follow-up procedures (Dillman, 2009). As Dillman recommended, every effort was made to personalize all contacts to respondents. Following the receipt of the superintendent consent forms, a pre-notice email (Appendix K) was sent to all 6-8 middle school teachers in the districts where superintendent permission was obtained.

An introductory letter (Appendix K), emailed four days before the survey was sent, contained details about the purpose of the survey and access to the survey. The letter explained that the survey would be emailed in a few days. The letter also explained the general purpose of the study and gave assurance of confidentiality throughout the study. Three days later, a letter of invitation to participate in the survey (Appendix L) was emailed to these middle school teachers. The letter contained an introduction of the researcher and the web link for accessing the survey. Eight days later, a follow-up email

was sent thanking those who had completed the survey and asking the others to consider completing the survey. An email thank you/reminder (Appendix M) was sent one week later to the non-respondents informing them of the deadline for the survey. Finally, one week later, a thank you/reminder email (Appendix N) was sent announcing that one week remained before the survey's closing date.

The invitation to participate in the study informed middle school teachers that their responses would help determine the extent to which they perceived that professional development opportunities affected student achievement in western North Carolina. Respondents were informed that findings of the study would be used to determine their perceptions of the quality of the professional development, as related to teacher and student needs, and the resources (including time, materials, and funding) provided for the professional development activities. Teachers were asked to respond to the survey electronically within two weeks.

Participation in the study was strictly voluntary, and the participants were informed that they could withdraw at any time during the survey period. Prospective respondents were assured that, when reporting the data, the identity of the districts and personnel involved in the study would be protected. Throughout this study, all individually identifiable information was handled with the utmost discretion. Teachers' names were not associated in any way with the information collected or with the research findings from this study. The researcher used a unique identification number assigned by the Zoomerang™ instrument instead of names.

After the survey findings were analyzed, a focus group was set up with the district whose responses were second most aligned with the Learning Forward Standards. The

researcher sought permission from the principals at each of the middle schools in the district and asked the principal to recommend a teacher whom he/she felt would be willing to participate in the focus group. Using a non-random procedure by having the principal choose the teacher to participate may be a limitation as teachers may not have been candid with their responses or may have chosen not to share information. Once the teachers were identified, email correspondence between the researcher and the teachers ensued to arrange a meeting time. The teachers were assured that their identity would be protected when reporting the data. There were seven middle schools in the district and six teachers participated; one could not make the meeting due to inclement weather.

The focus group meeting was held at the district's central office after school. A time period of one hour was set for the meeting; the meeting was tape recorded by the researcher. Only the focus group members and the researcher were in attendance. There were one male and five female participants. Years of experience for the six participants were 1 year, 3 years, 5 years, 14 years, 26 years, and 37 years. Grade levels taught represented one sixth grade teacher, three seventh, and two eighth grade teachers.

Data Analysis

The Statistical Package for the Social Science for Windows (SPSS) was used in the analysis of quantitative data in this study. To aid in the analysis of demographic data, Creswell (2005) recommended the development of a "demographic table" (p. 249). The table included the following data: (a) teacher identification number, (b) gender of teacher, (c) years experience as a teacher, (d) subject(s) taught, and (e) the size of the school district. Summarized data from the descriptive responses were analyzed and the researcher generated descriptive statistics to report aggregate responses to all items

completed in the survey. Figure 2 contains the data analysis method that pertains to each research question.

Figure 2. Data Analysis

Corresponding Survey Question(s)	Research Question	Data Analysis Method
4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1) To what extent do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year was aligned with Learning Forward Standards?	Frequency distributions and descriptive statistics: mean, median, and mode
17, 18	2) In what ways do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement?	Frequency distributions and descriptive statistics; Quotes used to illustrate key ideas/beliefs and to illustrate relation to the Learning Forward Standards; Key words and phrases coded and categorized using a category system
1, 2, 3, 5,13A-O	3) Is there a relationship between western North Carolina's middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?	Chi-square for analysis of gender, years' experience, subject(s) taught, district size; Z-test for differences in proportions
1, 2, 3, 5, 13-P, 17, 18	4) Is there a relationship between western North Carolina's middle school teachers' perceptions of the impact of professional development on their classroom practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?	Key words and phrases coded and categorized using a category system; Chi-square for analysis of student achievement; Frequencies and percentages of those key words and phrases; Quotes used to illustrate key ideas/beliefs and to illustrate relation to the Learning Forward Standards
20	5) What do western North Carolina's middle school teachers perceive as their greatest professional development need?	Key words and phrases coded and categorized using a category system; Frequencies and percentages of those key words and phrases; Quotes used to illustrate key ideas/beliefs
19	6) What professional development experience do western North Carolina's middle school teachers say is the most beneficial experience of their career? Explain why it was meaningful.	Key words and phrases coded and categorized using a category system; Frequencies and percentages of those key words and phrases; Quotes used to illustrate key ideas/beliefs and to illustrate relation to the Learning Forward Standards

Question 1 examined the extent to which teachers believed the professional development they participated in was aligned to Learning Forward Standards. Survey questions 4 and 6 to 16 corresponded to this research question and contained Likert scale responses. Descriptive statistics including frequency distributions and mean were determined for each set of data in order to answer the research question.

Question 2 examined the impact of professional development on classroom practices and student achievement. Survey questions 17 and 18 elicited open-ended responses related to classroom practices and students achievement, respectively. Responses were analyzed through data gathered from teacher responses on the survey through the use of a category system as recommended by Creswell (2005). All responses were coded and the list reduced to themes. Patton (2002) states "Thick, rich description provides the foundation for qualitative analysis and reporting" (p. 437). A colleague who recently completed her doctorate also coded the responses and reduced the list to themes. The researcher and colleague compared the coding before coming to consensus, thus increasing inter-rater reliability. Creswell (2005) recommended this method because it has the advantage of negating any bias that any one individual might bring to scoring.

Question 2 also included focus group responses. The interview data from the focus group were transcribed. Responses to each question were analyzed and coded for themes related to the research questions (Creswell, 2005). Narratives were constructed for the responses and these narrative responses were then added to the discussion of the findings to include further insight into teacher perceptions of professional development experiences. Teacher comments from the survey and focus group are interwoven into the narrative to support the findings. This procedure allowed the researcher to get a general

sense of the data collected and to think about more deeply the organization of the data (Creswell, 2005).

Data for research questions 3 and 4 were analyzed using nonparametric statistics. Adherence to Learning Forward Standards and perceptions of impact were examined by gender, years of experience, subject(s) taught, and district size through the use of Chi-square tests. The data yielded from the responses to question 3 (survey questions 1-2) were examined to determine if significant relationships existed. Significant relationships were further explored through the use of a Z-test to determine where the difference in proportions existed. Open-ended survey questions 17 and 18 were also used to answer research question 4; responses were analyzed and coded for themes as previously described for question 2.

Questions 5 and 6 explored the greatest professional development need (survey question 20) and the most beneficial professional development experience (survey question 19). Responses were coded and reduced to themes through the category system. Focus group responses were analyzed, coded, and reduced to themes for integration into the discussion of findings for questions 5 and 6.

Conclusion

Chapter Three re-stated the purpose of the study and the research questions, discussed the conceptual framework, and described the sample. Variables and instrumentation were presented along with data collection methods and data analysis procedures. Chapter Four contains the results of the study, including background and data collection information, respondent characteristics, findings for each research question, and a summary of the findings.

CHAPTER FOUR: RESULTS

Chapter Four contains a description of the sample and presents the findings of the study. The purpose of this study was to examine middle school teachers' perceptions of whether or not the professional development in which they participated contributed to student achievement, positively affected classroom practices, and aligned with professional development standards. This study provides insight on western North Carolina middle school teachers' perceptions of the quality of their professional development as gleaned from the survey and the focus group.

Descriptive Information

The target sample in this study included 862 western North Carolina middle school teachers (grades 6, 7, and 8) from 21 middle schools in eight school districts. The superintendents from each of these districts granted the researcher permission to seek participation from the teachers. Electronic surveys were sent to 862 middle school teachers and 230 teachers completed the survey for a response rate of 26.7%. There were 38 partial responses which were not included in the analysis.

Demographic items were developed in order to gain further insight on the respondents. In Table 2, the response rate is displayed; the percent return rate represents the proportion of teachers returning a survey in a specific district from the total number of teachers who received a survey from that same district. The percent of total responses indicates the proportion of total returned responses represented by each district. The greater part of responses was from three districts; District 7 (n = 132) had a return rate of

50% and District 8 (n = 62) had a return rate of 32.2% followed by District 2 (n = 342) with a response rate of 25.1%. The return rate for other districts ranged from 11.8% to 16.5%.

Table 2

Return Rate

School District	Teachers surveyed each district N = 862	Teachers returning survey N = 230	% return rate	% of total responses
District 1	58	9	15.5	3.9
District 2	342	86	25.1	37.4
District 3	34	4	11.8	1.7
District 4	139	23	16.5	10.0
District 5	57	9	15.8	3.9
District 6	38	6	15.8	2.6
District 7	132	66	50.0	28.7
District 8	62	20	32.2	8.7
Unidentified		7		3.1

Of the respondents completing the survey (Table 3), 21% were male (n = 49) and 79% were female (n = 180). Teachers' years of experience ranged from one to 38 and the mean number of years experience was 15.6. Nearly 11% (10.9%) of the respondents had one or fewer years of experience, 23.9% had 6-10 years, 21.7% had 11-15 years, 13%

had 16-20 years, 12.2% had 21-25 years, 12.2% had 26-30 years, and 6.1% had thirty or more years of experience.

Table 3

Demographic Characteristics of Survey Respondents

Variable	n	%
Gender		
Male	49	21.4
Female	180	78.6
Years of Experience		
0-5	25	11.4
6-10	54	24.6
11-15	46	21.0
16-20	29	13.2
21-25	25	11.4
26-30	26	11.9
30+	14	6.4

Ninety-two percent of the respondents said their schools were divided into teams during the 2009-2010 year and 91% said they shared a common planning time. The average planning time per day, as teachers indicated on their survey, was 82 minutes and the average planning time per week was reported as 406 minutes.

Seventy-three percent of the respondents said there was a professional learning community (PLC) within their school while 78% said they participated in a PLC during the 2009-2010 year. Of those who participated in a PLC, 72% said the goals of the PLC were aligned or completely aligned with the goals of their school. Ten percent said the goals were somewhat aligned, while 1% said the goals were not aligned. Seventeen percent stated they did not know if the goals of the PLC were aligned with the goals of their school.

When asked whether a substitute was provided, if needed, for the respondent to participate in professional development, 47% said a substitute was provided always or most of the time. Twenty-three percent said a substitute was rarely or sometimes provided, while 30% stated a substitute was never provided.

Materials were furnished for the respondent to use with the content learning in professional development during the 2009-2010 school year most of the time or always, according to 65% of the respondents. Twenty-one percent stated they were sometimes furnished with materials, and 14% said they were rarely or never furnished with materials to use with the professional development in which they participated.

Research questions 1-6 and the data answering them follow.

Research Question 1: To what extent do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year was aligned to the Learning Forward Standards?

When all responses were analyzed (Table 4), the mean was 2.76 for all 230 responses. It is significant to note, however, that 71 (30.9%) of the respondents marked "Don't Know" as their response. When their data were excluded in the analysis, the

mean was 1.76 and the standard deviation was 0.698. The mean (M) was derived from the Likert scale responses (1 = Strongly Aligned) and (5 = Not at All Aligned) so the higher the mean, the less aligned the items are.

Table 4

Perceptions of PD Experiences Alignment with Learning Forward Standards

PD Alignment with LF standards	M	SD	Std. Error
All respondents (N = 230)	2.76	1.608	.106
Without don't know responses (n = 159)	1.76	0.698	.055

Research Question 2: *In what ways do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement?*

Perceived Impact of Professional Development on Classroom Practice

Teachers were asked to share one example of how the professional development opportunities they participated in during the 2009-2010 school year, including professional learning communities, impacted classroom practice. Their responses can be grouped as those that pertain to the content of the professional development or the form of the professional development (Table 5). Over 30% (55 of those who answered the question) listed or discussed specific instructional programs in their narratives. Specific programs mentioned (Appendix R) were Sheltered Instruction Observation Protocol®

(SIOP), MathPARTNERS, Algebraic Thinking, Moodle, Rubicon-Atlas Training, LEARNING-FOCUSED©, Thinking Maps®, Connected Mathematics Project 2© training (CMP2), and ClassScape. These specific instructional programs include strategies for reaching the academically gifted learner, academic vocabulary, and chunking for reading. One teacher stated, "we studied good examples of incorporating adolescent novels into every aspect of language arts – spelling, vocabulary, reading comprehension, higher-level thinking and End of Grade preparation." Several mentioned strategies specific to writing such as the use of journals and content writing assignments. Others discussed the use of cooperative learning strategies and seminar groups. One made the observation:

> As a math teacher, I often took for granted that 6th grade students understood the concrete and could go ahead with the concept or procedural way of doing math. I now realize that it is still important in 6th grade to bridge the knowledge of math from concrete to concept to procedure.

Another stated, "I am much more reflective now [after professional development] examining how my methods of teaching reach all my students and trying different methods for different kids."

Nearly 18% (32 teachers) indicated that professional development related to technology impacted their classroom practice. Responses included examples of technology training and ways to implement technology into instruction. Teachers cited instances of previous professional development opportunities and elaborated on ways they were incorporating what they had learned into their classroom instruction. A thirty

Table 5

Teachers' Perceptions of PD that Impacted Classroom Practice (N = 179)

PD opportunities	n	%
Content of Professional Development		
Specific instructional programs	55	30.7
Technology	32	17.9
Assessment	24	13.4
Content-specificity	11	6.1
Needs of middle level learners	8	4.5
Examining best practices	5	2.8
Form of Professional Development		
Collaboration	33	18.4
No impact	9	5.1
Other	2	1.1

year veteran said:

> The technical training, using new methods to incorporate into classes, i.e. podcasting, allows me to provide more creative, hands-on alternative lessons to appeal to various learning styles. It also increases the energy and focus level of students as this type of learning piques their excitement.

A twenty-five year veteran shared, "I was able to use a webinar and contact through

email with people involved with the Quantile Framework which will, in the long run, allow me to better differentiate instruction through the use of data."

Twenty-four teachers (13.4%) discussed various types of assessments they had learned about through professional development. Each respondent's answer indicated that gathering, organizing, and interpreting data allowed him/her to gain a deeper understanding of students' instructional needs. As a result, the teachers felt they were equipped to make informed decisions on remediation and re-teaching. One shared that "PLCs encouraged me to become more aware of how my students were learning; the data allowed me to remediate as needed."

Five teachers shared the value of common assessments with comments such as "Common assessments helped us to see where we needed to re-teach and review." Another teacher said he was using "formative assessments in conjunction with summative assessments."

Focus group members also described the value of assessment training. One member explained that obtaining End of Grade testing data in the summer allowed time for her to examine and reflect on her students' scores. As a result, she had time to use the data to plan and implement needed changes at the beginning of the new school year. Her PLC time then became more productive because the data showed teachers the areas needing to be revised as well as the areas in which students were doing well, thereby increasing the amount of quality time spent on planning and teaching. Another teacher stated that "Data could now drive the instruction and serve as a guide when developing unit plans. We were able to develop common assessments across grade levels."

Several teachers in the focus group discussed the use of Education Value Added Assessment System (EVAAS™) data from SAS®EVAAS™ currently available to all North Carolina teachers. Some teachers used EVAAS™ data to develop remedial classes. The data also allowed teachers to "determine if a wide disparity exists between answers or if students were missing the same questions." An eighth grade algebra teacher discussed the value of EVAAS™ data in placing students in high school math, explaining "I have found it to be an accurate determinant and help me place students correctly." Another teacher discussed the use of data from Positive Behavioral Interventions Support (PBIS) "to give me data on behavior and make decisions on ways to help students."

Slightly more than 6% of the respondents indicated that content-specific professional development impacted their classroom practice during the 2009-2010 school year. A thirty-three year veteran made the observation that after attending a mathematics workshop she felt better able to assist her students through appropriate questioning strategies and drawing from previously mastered concepts. She reflected on this workshop experience by remarking, "My comfort level and effectiveness as a teacher was much enhanced." Others mentioned the value of "increased content knowledge" and "improved knowledge of my subject area."

Five teachers (2.8%) mentioned the benefit of studying best practices. One teacher stated:

> Many of our on-site professional development sessions focused on best practices for twenty-first century learners. These strategies focused on how to create a positive learning environment that would foster critical and creative

> thinking and how to collaborate with others in order to form answers to higher level thinking questions. There were several strategies given for pre-reading, reading, and post reading that were shared which could be used to enhance students' reading comprehension. Several of these activities were used in the classroom.

As to the form of professional development, collaboration was mentioned in the survey by 18.4% of the respondents as impacting classroom practices and student achievement. This collaboration included working with peers in PLCs, grade level planning, and classroom observations between teachers. Teachers also listed curriculum mapping and unit development as benefits of collaboration. One teacher remarked:

> The other 8th grade science teachers and I, working together in a PLC, planned all activities and labs to go along with the North Carolina Standard Course of Study. By sharing ideas and strategies, we all benefited by being able to use new ideas and strengthen the effectiveness of activities used previously.

A twenty-six year veteran shared:

> [Our] PLC had a huge positive impact on me and my students – students knew their teachers were all using the same or similar essential questions and that we worked well as a team and communicated a lot – that has spread to our entire 7th grade.

A twenty-three year veteran made the observation:

> Weekly planning and discussion of ideas to improve student learning in our 7th grade math community was [*sic*] extremely beneficial. Collaboration with regular

education teachers is vital for special education teachers to increase curricular knowledge.

Perceived Impact of Professional Development on Student Achievement

Content of Professional Development

Teachers were asked to share one example (Table 6) of how their professional development during the 2009-2010 school year impacted their students' achievement by describing the professional development focus and describing the evidence of impact on student achievement. Of the 139 respondents to this question, 53 teachers (38.1%) shared answers fitting the category of specific instructional programs and topics that were most influential. Specific program opportunities included a Moodle technology course, Algebraic Thinking, Sheltered Instruction Observation Protocol®(SIOP) Training, Reading Foundations, LEARNING-FOCUSED©, and Quality Teaching and Learning (QTL). Other areas of focus for professional development were training in mathematics, science, healthful living, music and vocabulary instruction.

One teacher shared:

> In July 2009, I attended a 3 day workshop on the "Takadimi" method of music sight-reading, led and developed by Dr. Carol Krueger. This method makes sight-reading a less threatening, more user friendly activity, and led to my students earning a score of 98 in sight-reading at the Festival in March, 2010.

Nearly 13% of the teachers surveyed discussed the impact of professional development that focused on assessment. Responses included examples of formative and summative assessments that were either pre-designed, teacher-made, or created

Table 6

Perceptions of Impact of Professional Development on Student Achievement (N = 139)

Professional development opportunity	n	%
Content of Professional Development		
Specific instructional programs	53	38.1
Assessment	18	12.9
Technology	16	11.5
Use of data	9	6.5
Diverse learners	8	5.8
Content-specificity	4	2.9
Form of Professional Development		
Collaboration	26	18.7
No impact	5	3.6

collaboratively. Additional responses related to assessment include the use of rubrics, applying the results of data, students' understanding of a concept, and specific subject assessments. Evidence of impact included student success, increased student confidence, post test results, and student understanding of expectations. A teacher shared that "I learned better, simpler means of student assessment that didn't necessarily have to be a huge test. Quick on-the-spot assessments can lead to almost immediate interventions for

the student." Another shared "Because I chose to focus on vocabulary, my students are better prepared for high-level courses in social studies. Their retention of said vocabulary was much higher than students from previous years."

Technology was the professional development focus which sixteen of the teachers (11.5%) felt most impacted student achievement. Areas of focus were technology professional development, online coursework, and the use of technological devices, i.e., document cameras. Evidence of impact included increased student enjoyment and achievement, increased motivation, use of critical thinking skills, and increased student confidence.

Teachers repeatedly shared that when they used technology in the classroom students were enthusiastic and engaged in their studies. The perceived evidence of impact is shown in this response:

> I was especially pleased with Level 1 students' more active participation in learning with new tools. Many of these students had mentally quit school, but found the incorporation of technology too exciting to refuse. Many of these students went on to complete a research paper in correct format. I doubt if the attempt would have been made without the impetus of technology. I do not know if more active participation contributed to higher test scores than would otherwise have been made, but students did participate more actively in reading/writing activities. I believe that my training crossed over into increasing the ability of students to think critically and to communicate articulately.

One respondent commented that "Students were excited to be using technology. They were more creative, excited and on-task." Another made the observation that

"After completing the Intel workshop, I created a project-based unit that engaged students resulting in higher achievement on summative assessments."

Use of data was a category shared by nine (6.5%) respondents. The professional development focus of each respondent was data analysis and evidence of impact centered on increased student achievement and the identification of areas in which students needed further assistance. A fourth year teacher shared:

> Use of student data helped the students and me to…understand where each student needed to grow, and data showing the students the growth they had achieved throughout the year. The students were surprised at their growth and it helped build self confidence in their abilities and work production.

Eight teachers (5.8%) shared that the professional development focus on diverse learners was valuable in increasing student achievement. Areas mentioned were minority groups for adequate yearly progress (AYP), student learning styles, differentiation of instruction, bully prevention, and middle school behavioral needs. Evidence of impact was shown by fewer discipline problems, all sub-groups meeting AYP requirements, and an increase in End of Grade test scores. Comments included "Minority groups were targeted for academic improvement through our professional development; as a result, all 34 of our subgroups met AYP for the year" and "I do bully prevention. Perhaps this helped students to be more respectful of one another and, therefore able to focus on achievement rather than bullying behavior."

Professional development in content-specific needs was identified by 2.9% of the respondents as impacting student achievement. Areas of focus included gaining content

knowledge from peers teaching the same subject(s) and working as a PLC to increase content knowledge. Evidence of impact was centered on student achievement.

Form of Professional Development

Twenty-six teachers (18.7%) stated that collaboration impacted their students' achievement. Areas of professional development focus included PLC collaboration, peer observations, the sharing of ideas, strategies, and resources for incorporating technology into instruction, and developing pacing guides and predictive assessments collaboratively. Evidence of impact were increased student achievement on the End of Grade and writing tests, increased student interest, meeting AYP requirements for the 2009-2010 year, and anecdotal evidence of students enjoying their instruction. A thirty-six year veteran shared:

> We met as a staff in small teaching groups to discuss research and methodology that was current to this 21st Century and the skills required by our students. Using probes and more technology gave me a better idea of what to teach further and tools that kept my students more involved. Many of them who are Exceptional Children demonstrated writing skills more closely aligned to the expected level of middle school students.

Another shared the success of a collaborative experience:

> Our PLC developed a unit on Environmental Problems and Solutions. By pooling all of our resources, the unit was stronger than any of our individual units. Students' articulation of the situations and solutions facing humans in the world today were of a higher caliber.

Research Question 3: *Is there a relationship between western North Carolina's middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?*

A Chi-square test (Appendices S-V) was conducted on items 13 A – O in the categories of teachers' gender, teachers' years of experience, the subject(s) taught, and the size of the district (Table 7). There was only one statistically significant result; item 13-O in the category of subject(s) taught ("PD provided me with knowledge & skills to involve families and other stakeholders"). There were statistically significant differences of opinion on this item based on the subject(s), which the respondents taught during the 2009-2010 school year.

Table 7

Relationship Between Perceptions of Subject(s) Taught and Adherence to LF Standards

Knowledge and skills for families and other stakeholders	Value	df	Asymp.Sig. (2-sided)
Chi-square	50.289	28	.006

To determine what subject area(s) contributed to the significant result of the Chi-square test, pair-wise Z-tests of proportions were conducted (Appendix W). There were statistically significant differences between Social Studies teachers who responded

"Don't Know" and teachers from three other categories: Language Arts, More Than One Core Subject, and Non-Core Subjects (Table 8). The z-score results are statistically significant at $\alpha=0.01$; a value of $z = \pm 2.232$ is required for significance at this level.

Table 8

Z tests for Social Studies Teachers and Subject(s) Taught

Subject(s) taught	z-score
Language Arts	3.257
More Than 1 Core Subject	3.080
Non-Core Subjects	3.086

The percentage of social studies teachers who responded "Don't Know" was 23.9%. In contrast, the other "Don't Know" responses were 11.7% from teachers who taught non-core subjects, 7.4% from language arts teachers, and 5.6% from teachers who taught more than one core subject.

Research Question 4: Is there a relationship between western North Carolina's middle school teachers' perceptions of the impact of professional development on their classroom practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?

Both quantitative and qualitative data were used to answer this question. Survey Question 13 contained sixteen sub-questions representing the Learning Forward Standards. These questions solicited a Likert Scale response of various aspects of professional development. The mean (M) was derived from the Likert Scale responses (1

= Strongly Agree and 5 = Strongly Disagree). As a result, the lower the mean, the higher the perceived impact is of the professional development. The mean was determined for each sub-question in order to examine the impact on classroom practices and a Chi-square was used to analyze the impact on student achievement. Qualitative data received through open-ended responses were solicited in Question 17 (classroom practices) and Question 18 (student achievement). Data from these questions were analyzed through a coding process to reduce the list to themes (Creswell, 2005).

Classroom Practices

Survey Questions 13A and 13E - 13N pertained to professional development activities that could impact classroom practices. The mean (M) was calculated to examine possible relationships between perceptions of the positive impact of professional development on classroom practices and the teachers' gender, years of experience, subject(s) taught, and district size. Open-ended responses to survey Question 17 allowed respondents to share one example of how professional development during the 2009-2010 school year had impacted their own classroom practice.

Gender

There was not a significant difference in the perception of the impact of professional development on classroom practices based on gender. As shown in Table 9, the mean for males was 2.35 and the mean for females was 2.36.

Similar perceptions between genders were also supported by Question 17 responses. Both males and females reported professional activities related to instructional strategies as having the most impact followed by activities related to professional collaboration followed by the use of technology in instruction

Table 9

Perceptions of Impact of PD on Classroom Practice by Gender

Gender	M	SD	Std. Error
Male	2.35	1.09	0.02
Female	2.36	1.09	0.02

Years Experience

The relationship between the impact of professional development on classroom practices and years of experience was explored by grouping experience levels into five year intervals. Examination of the mean for each experience level (Table 10) did not indicate significant differences.

Most teachers, regardless of their experience level, described instructional strategies and professional collaboration in Question 17 as the types of professional development most impacting their classroom practices. However, the group of teachers with fewer than five years experience reported professional development related to the needs of diverse and/or middle level learners as most impacting their classroom practice.

One respondent identified a workshop session, led by teachers - for teachers, that focused on trends in middle school aged children and how to tailor instruction to engage them more effectively. Another teacher mentioned a Learn and Serve project, which allowed their middle school students to get "motivated about a cause bigger than themselves." The only other group with a different response was the teachers with

Table 10

Perceptions of Impact of PD on Classroom Practice by Years Experience

Years experience	% Teachers	M	SD	Std. Error
0 - 5	9.6	2.35	1.08	0.02
5.1 - 10	23.0	2.36	1.09	0.02
10.1 - 15	23.6	2.37	1.09	0.02
15.1 - 20	11.8	2.37	1.07	0.02
20.1 - 25	12.9	2.36	1.07	0.02
25.1 - 30	12.9	2.35	1.09	0.02
30.1 - 35	4.5	2.38	1.09	0.03
35.1 - 40	1.7	2.38	1.04	0.03

between 15.1 to 20 years experience. These teachers listed the use of technology in instruction as the professional development most impacting their classroom instruction.

Subject(s) Taught

Responses to Question 13 and Question 17 were analyzed by grouping them according to specific subject(s) taught by each teacher. As shown in Table 11, core subjects included language arts, mathematics, science and social studies. Non-core subjects included physical education, health, foreign languages, the arts, media, counseling, Academically Intellectually Gifted (AIG), and English as a Second Language (ESL). Career Technical Education (CTE) included career development, computer

skills/keyboarding, and business. Respondents were asked to identify all subjects they taught. As a result, a teacher's responses to Question 13 and Question 17 may have been duplicated if he/she taught more than one subject area.

A total of 26 teachers reported they taught more than one core subject. This group had a slightly lower mean for Questions 13-A and 13E - N than the other groups. The "More than 1 Core Subject" group as well as the "Non-Core Subjects" group had the lowest standard deviations indicating less variability in their responses to the 16 sub-questions in Question 13.

Table 11

Perceptions of Impact of PD on Classroom Practice by Subject(s) Taught

Subject (s)	M	SD	Std. Error
Core Subject			
Language Arts	2.37	1.09	0.02
Math	2.36	1.09	0.02
Science	2.35	1.09	0.02
Social Studies	2.37	1.09	0.02
More than 1 Core Subject	2.29	1.05	0.05
1 Core and 1 Non-Core Subject	2.05	0.79	0.06
Career Technical (CTE)	2.36	1.09	0.02
Non-Core Subjects	2.31	1.01	0.04

Professional development activities related to instructional strategies and professional collaboration were the first or second most commonly mentioned as having the most impact in classroom practice in Question 17. Exceptions to this came from the "More than 1 Core Subject" group which identified types of assessment and examining best practices as having the second most impact, CTE teachers identified the needs of diverse/middle level learners as second, and the Non-Core teachers identified the use of technology in instruction as second.

District Size

Respondents' district size was determined by total student population. Small districts are defined as those with a student population of less than 3,000 students; populations between 3,000 and 10,000 were classified as medium; and populations greater than 10,000 were classified as large. Responses to Questions 13A and 13E-N did not reveal a significant difference in mean scores (Table 12). Open-ended responses to

Table 12

Perceptions of Impact of PD on Classroom Practice by District Size

District size	% Districts Surveyed	M	SD	Std. Error
Small	10.8	2.39	1.08	0.02
Medium	36.9	2.36	1.09	0.02
Large	52.3	2.35	1.09	0.02

Question 17 indicated professional development on instructional strategies and professional collaboration had the most impact on classroom practices for both small and large districts. However, the medium size districts identified the use of technology in instruction as having the most impact on their classroom practice. Of the 65 total responses, 18 were related to technology including the use of computers for (a) student research and classroom presentations, (b) podcasting, and (c) a teacher-designed webpage for classroom extension activities. In addition to computers, ActivBoard and Interactive whiteboards were mentioned as technology tools used in the classroom. An increase in student engagement, interest level, and collaboration were also mentioned as results from incorporating technology into instruction.

Student Achievement

Survey Question 13-P focused on professional development activities that could impact student achievement. Question 13-P, "Professional development impacted my students' achievement" solicited a Likert Scale response. The Chi-square was calculated to examine possible relationships between perceptions of the impact of professional development on student achievement and the teachers' gender, years of experience, subject(s) taught, and district size. Open-ended responses to survey Question 18 allowed respondents to share one example of how professional development during the 2009-2010 school year had impacted their students' achievement.

Gender

The Chi-square for student achievement and gender was not significant ($\chi^2 = 0.83$, $p < 0.93$). Additionally, to further explore teachers' perceptions, comments

provided in Question 18 were examined via theme analysis. Males and females indicated similar agreement in their perceptions of the impact that professional development had on student achievement. Both males and females listed professional development activities related to instructional strategies as having the most impact on student achievement. Instructional practice was listed as having the most impact on student achievement by 25.9% of the males and 29.7% of the females. Slight differences between the genders emerged in two important areas. Over 21% of the women listed collaboration but slightly fewer than 15% of the men cited collaboration as having the most impact on student achievement. The men cited learning more about assessment (22.2%) while only 10.8% of the women listed assessment as having the most impact on student achievement.

Years Experience

The Chi-square for student achievement and years experience was not significant (χ^2= 28.65,p < 0.43). Additionally, to further explore teachers' perceptions, comments provided in Question 18 were examined via theme analysis. Instructional strategies were reported as most impacting student achievement by teachers with 0-5 years of experience (25.0%), 6-10 years of experience (40.7%), 11-15 years of experience (29.4%), 26-30 years of experience (29.4%), and 31-35 years of experience (40.0%).

Assessment was reported as most impacting student achievement by teachers with 16-20 (18.8%) and 21-25 (31.3%) years of experience. Replacing multiple choice items on common assessments with questions requiring open-ended responses was also mentioned as increasing student achievement. Specific activities mentioned included the

use of rubrics and the use of formative assessments. Finally, teachers with 36-40 years of experience (33.3%) said collaboration had the most impact on student achievement.

Subject(s) Taught

The Chi-square for student achievement and subject(s) taught was not significant ($\chi^2 = 15.22$, $p < 0.98$). Additionally, to further explore teachers' perceptions, comments provided in Question 18 were examined via theme analysis.

Table 13 presents the top two responses (respectively) from teachers by subject area as to the variables, which they perceived as most impacting student achievement.

Table 13

Top Two Responses as to Subject(s) Taught and Impact on Student Achievement

Subject (s) taught	First response (%)	Second response (%)
Core Subject		
Language Arts	Instructional strategies (41.2%)	Assessment (17.6%)
Mathematics	Instructional strategies (26.2%)	Collaboration (21.4%)
Science	Collaboration (29.2%)	Instructional strategies (25.0%)
Social Studies	Instructional strategies (31.0%)	Assessment (17.2%)
More than 1 core subject	Instructional strategies (33.3%)	Assessment (25.0%)
1 core/1 non-core subject	Assessment (50.0%)	Collaboration (25.0%)
CTE	Instructional strategies (30.0%)	Content-specific (20.0%)
Non-Core	Collaboration (23.9%)	Instructional strategies (17.4%)

Responses to Question 13-P and Question 18 were analyzed by grouping them according to specific subject(s) taught by each teacher. Core subjects included language arts, math, science and social studies. Non-core subjects included physical education, health, foreign languages, the arts, media, counseling, AIG and ESL. CTE included career development, computer skills/keyboarding, and business. Respondents were asked to identify all subjects they taught. As a result, a teacher's responses to Question 13-P and Question 18 may have been duplicated if he/she taught more than one subject area.

More respondents listed instructional strategies than any other type of professional development activity as most impacting student achievement. However, the teachers in the "1 Core and 1 Non-Core Subject" group had no responses related to instructional strategies. Instead, 50% of their responses fell into the “Assessment” category: adjustments to grading scales, use of formative assessments, and creating common assessments through PLCs. Similarly, assessment was the theme with the second most given responses for Language Arts, Social Studies, and "More than 1 Core Subject" teachers. Their responses also focused on formative assessments and the use of PLCs to create common assessments.

District Size

The Chi-square for student achievement and district size was not significant ($\chi^2 = 4.12$, $p < 0.85$). Additionally, to further explore teachers’ perceptions of which professional development had the greatest impact on student achievement, comments provided in Question 18 were examined via theme analysis. The professional development focus having the greatest impact on student achievement was instructional strategies as reported by the medium (29.2%) and large (26.3%) districts. Respondents

from small districts reported the impact of professional development on instructional strategies (21.4%) and collaboration (21.4%) on student achievement was the same. Professional development on technology (18.8%) was the second most frequent response from teachers in medium sized districts. Collaboration (22.4%) was the second most frequently listed activity for teachers in large districts. Numerous responses from the small and large districts repeatedly mentioned PLCs and peer collaboration to discuss ideas, plan lessons, and create common assessments as most impacting student achievement.

Research Question 5: *What do western North Carolina's middle school teachers perceive as their greatest professional development need?*

There were 184 teachers who provided input describing what they believed to be their greatest professional development need (Table 14). Responses to this question have been categorized according to resources and content of professional development.

Greatest Professional Development Need

Resources for Professional Development

The greatest professional development need as perceived by teachers centered on the resources and the need for further professional development in a number of topics (Table 14). Over 20% (20.7%) of the teachers surveyed indicated the need for more time as their greatest professional development need. The need for time was defined in several different ways. For example, when teachers said they needed time to learn about differentiated instruction, they noted that they wanted more time for collaboration with their colleagues to share ideas, time to network with others in their subject areas, and to share a collaborative planning time discussing student needs, strategies for addressing

Table 14

Greatest Professional Development Need (N =184)

Professional development need	n	%
Resources for Professional Development		
Having more time for PD	38	20.7
Resources for materials/conferences	11	6.0
Content of Professional Development		
Content-specificity	26	14.1
Technology integration	24	13.0
Developmental needs of the adolescent	23	12.5
Academic needs of the adolescent	20	10.9
Differentiated instruction	19	10.3
Strategies for exceptional children	13	7.1
Assessment/data analysis training	7	3.8
Parental involvement	3	1.6

those needs, and creating meaningful lessons. One teacher stated the need for "more time working collaboratively with other language arts teachers, both within my school time working collaboratively with other language arts teachers, both within my school and within the county, to share ideas and best teaching practices." Another responded, "As a middle school … teacher, I feel the need is the greatest for collaborative planning with teachers across subject areas." Twelve percent of the respondents' answers were related to the use of time for developing lessons, grading papers, attending meetings,

incorporating technology, attending the middle school conference, developing character education lessons, and pursuing professional development. One respondent answered:

> Latitude. I KNOW what I need to work on and wish I could design my own. Actually, I already do through my professional growth plan but to attend PDs that I have already gone through is quite frustrating. For middle school learners, it's about creativity, motivation, excitement and reaching the YouTube generation. I need time to find those approaches.

Still another responded by saying:

> TIME! We have many meetings, professional development, and school involvements. All are good but we are swamped by them as well. There is little time to digest the information let alone make wonderful plans to implement all that we learn.

Resources were identified as the greatest need by 6.0% of the respondents. The greatest resource need other than time was the need for materials. Other respondents stated the need for "more PLCs and opportunities for participation in professional development outside the district."

Content of Professional Development

Content-specific professional development was the need expressed by 14.1% of the teachers. Numerous respondents articulated a need for more strategies for use within the specific subject. Specific subject areas mentioned were mathematics, language arts, science, social studies, reading, family and consumer science, and physical education. A twenty-five year veteran stated:

> I would really like to have more professional development opportunities in my field - science. Although I feel very competent in my knowledge of science, in general, the field changes so rapidly, and especially the technology available in teaching science which has expanded greatly. Most opportunities in the field require too much time away from school and are too expensive, including paying for a substitute, to be reasonable.

A twenty-three year veteran shared, "Reading! The focus of Language Arts methods at the middle grades is reading to learn. We still have many students who need to learn to read."

The integration of technology into classroom instruction was identified as a need by 13.0% of the teachers. Technology courses, opportunities to incorporate technology into lesson formats, and the use of all technology devices were mentioned as needs. One teacher stated:

> With all the emphasis being placed on technological procedures (perhaps each child in the 6th grade working with their own laptop), I need to learn how to use this equipment to enhance the learning of 6th grade math students.

Meeting the developmental needs of the adolescent was the need expressed by 12.5% of the teachers with comments such as "I think that many teams need to have PLCs to help better understand Middle School Philosophy and the benefits of teaming." Another respondent who had attended a session on brain-based learning emphasized the importance of understanding the adolescent learner. He expressed a need for professional development which would help in "understanding how their brains work" and help me "teach them in the way they learn best." Still another teacher avowed:

> My greatest need as a teacher of middle level learners would have to be more information about the mental and emotional development of students at this age. I would like to be able to understand their development process.

A theme mentioned by 10.9% of the respondents was that of meeting the academic needs of the middle school child. Teachers elaborated on the different ways in which students learn, the specific age range of middle level learners, and the challenges associated in serving students identified as exceptional children. Specific areas of concern were meeting the needs of both high and low achievers, reaching the reluctant or struggling students, and finding ways to hold students accountable for non-core subjects. One teacher wanted "help in meeting the needs of ALL children without sacrificing the faster students to the pace of the struggling students" while another cited two specific needs: "motivational techniques for disinterested learners" and "finding ways to make reading instruction relevant and engaging for students."

Differentiated instruction for the middle school student was another category of expressed need (10.3%). Teachers mentioned a specific need for training in differentiated instruction for the students with a "variety of learning styles and a differentiated instruction to maintain a brisk pace with students needing differentiation and strategies for varying instruction in a manner that is consistent and successful." A seventeen year veteran teacher wanted "still more on differentiation and classroom management." A twenty-eight year career teacher stated, "As a middle school English Language Arts teacher, I feel I need much help to reach reluctant readers and readers who are well below grade level."

Strategies for use in teaching students identified as exceptional children were an expressed need of 7.1% of the respondents. One respondent shared, "As a gifted educator, I would very much like to gain knowledge of strategies which are widely used in the three core subjects such as balanced literacy and connected math." Another declared:

> I still feel like I have trouble reaching my low-achieving, at-risk students. I manage them well behaviorally which is why I can make some progress with them, but I doubt it stays with them long. I want to know more about co-teaching. Even our Special Ed teachers don't understand what it is SUPPOSED to be.

A small number of respondents (3.8%) acknowledged a need for training in the use of data analysis and assessment. One stated her need as follows:

> Learning to create good assessments and analyze the results to better target my students' needs and adjust my teaching practice. Simultaneously, I'd like to have professional development that would give teachers space for collaboration, and not just discourse on how to best implement (experts) [*sic*] pedagogy. Instead, I'd like teachers to have professional development that permits true critical analysis of standards, goals, and pedagogy as well as analysis of assessments.

Finally, there were three respondents (1.6%) who said their greatest professional development need was strategies to get parents involved in the educational process of the student. A twenty-six year veteran remarked, "Being able to convince parents to get involved in their child's education" while a teacher of ten years wondered "how to get parents to be more responsible for their children."

Members of the focus group discussed their greatest professional development needs, mentioning many of the items from the survey results. However, the group agreed wholeheartedly with one teacher who stated that the greatest need of the middle school is "middle school teachers who understand middle school behavior. Teachers must understand that from day one or they won't be effective teachers." The teachers also stated they believed that middle school teachers often do not work at the middle level long enough to understand the students and their needs, citing examples of teachers who were certified K-6 or 6-9 and only accepted a middle school position until an elementary or a high school position became available.

Research Question 6: *What professional development experience do western North Carolina's middle school teachers say is the most beneficial experience of their career? Explain why it was meaningful.*

Most Beneficial Professional Development Experiences

When asked to describe the most beneficial professional development experience of their career, some teachers listed specific programs by name. Those included specific content activities and explicit forms of professional development.

Content of Professional Development

Content-specific professional development was viewed by 17.9% as being the most beneficial professional development. "PLCs that consist of teachers who teach the same subject/content matter helped me the most. I was able to learn new strategies and understand data more effectively." Another respondent made this observation, "PLC; it helps to be able to reflect with my content area teachers on a regular basis; it makes planning easier because we share ideas; we create assessments together." Teachers in

various subject areas (science, social studies, mathematics, reading, physical education) elaborated on the benefits of gaining curricular knowledge from their peers. Also mentioned was the use of manipulatives, data analysis, and gaining more information to understand middle school students and their needs.

Nearly fifteen percent (15.2%) of the teachers responding to the survey stated (Table 15) that the most beneficial professional development they had participated in related to specific instructional programs (Appendix R). These professional development activities included the North Carolina Teacher Academy program, Thinking Maps®, Algebraic Thinking, Empowering Writers®, Connected Mathematics Project 2© training, LEARNING-FOCUSED©, Rubicon Atlas Training, and The WILSON Reading System®. These programs represent commercially produced materials to aid teachers in classroom instruction. Specific comments included "Rubicon Atlas training because it helps me see where I have been and where I am going with my curriculum," and another observed that "Rubicon was beneficial in helping me plan and prepare units and lessons." Another observation from a veteran teacher espoused the value of the WILSON Reading Training System:

> It has given me a strong level of skills and confidence to teach reading to poor and non-readers at the middle school level. Since reading is such a critical skill, seeing students gain the skills that help them to function in regular classes is the most meaningful experience I have had in 36 years.

Some gave multiple reasons in each of the categories as to what made the professional development meaningful. Reasons centered on learning new teaching strategies and having the opportunity to examine teaching practices. A few respondents said the

Table 15

Most Beneficial Professional Development of Career (N = 178)

Professional development experiences	n	%
Content of Professional Development		
Content-specific	32	17.9
Specific instructional programs	27	15.2
Technological literacy and/or training	9	5.1
Classroom management	8	4.5
Differentiated instruction	6	3.4
Poverty	3	1.7
Form of Professional Development		
District/school sponsored	26	14.6
Conferences	21	11.7
Collaborative experiences	18	10.1
National Board certification	17	9.5
Advanced degrees/coursework	6	3.4
Travel abroad	1	0.6
Other		
Response unclear	3	1.7
All PD a waste of time	1	0.6

training helped increase their compassion for their students while others focused on manipulatives, receiving manipulatives and training on the use of manipulatives. The remaining reasons were reflecting on their work, understanding data, or an opportunity to network with colleagues.

Technological literacy and training was the most beneficial professional development cited by 5.1% of the respondents. Types of training mentioned were technology classes, Intel training, Promethean Board training, and specific ways to integrate technology into the subject being taught. As disclosed by one respondent, "Recently, acquiring technological literacy has given me know-how for integrating and implementing the use of technology into my instructional program."

Professional development employing strategies for improving classroom management was perceived as the most beneficial by 4.5% of the respondents. A fifteen year teacher shared the following, "It happened this year - Harry Wong. I have other educators come into my classroom and they cannot believe how well behaved and on task my students are."

Overwhelmingly, respondents said the reason for the stated activity being the most meaningful of their educational career was the increased knowledge on classroom management which the activity offered. The remaining teachers stated it either offered an opportunity for them to observe other teachers or it offered strategies which helped them to better understand their students.

Differentiated instruction was referred to by 3.4% of the teachers surveyed. Comments such as "Since almost every class I teach has at least one student with some

type of learning disability, the strategies proposed in the workshop were quite useful" were given by several respondents.

Poverty workshops were categorized as the most beneficial professional development by 1.7% of the respondents. All three of these responses specifically mentioned the training received from Ruby Payne's Framework for Understanding Poverty. One teacher observed:

> There are so many students in this area that fall into the poverty category that we cannot ignore the need to teach to those students. That is where our dropouts come from and if we are going to have a positive impact on the success of those students, we must be able to reach and teach them.

Form of Professional Development

Slightly more than fourteen percent (14.6%) found their most beneficial professional development experience occurred through a professional development opportunity sponsored by either the school or district. These responses centered on an experience which teachers viewed as one where knowledge was gained through an idea or strategy. Many discussed its relevance to their content knowledge and instructional practice; one gave an example of a district-initiated professional development: "Personally, I love our onsite professional development workshops. Several workshops are created, which provide valuable and usable methods and tips. Our staff is so talented, professional, and knowledgeable. Great school community!" Another teacher cited her experience at a district-sponsored event at a university:

> By far, my involvement in the Media Literacy program through Appalachian University has been the most beneficial professional development I have

experienced. It has been wonderful to bring literacy into the digital age, making it more meaningful and useful for my students in the real world.

As to what made the professional development experience meaningful, answers included new teaching strategies, use of manipulatives, specific content knowledge, and collaboration. Seven people gave no explanation.

The benefit of attending conferences was discussed by 11.7% of the respondents. One shared, "Going to a national conference allowed me to network and expand my content knowledge while learning about new initiatives." Another respondent discussed the value of attending the middle school conference, "My most beneficial professional development has been the two North Carolina Middle School Conferences I attended. I left with so many practical ideas that I was able to use immediately." One respondent, referring to a subject area conference, insisted, "The CTE Conference offers more information on my subject than any other professional development activity." Reasons given by nearly three fourths of the respondents as to why a conference was their most meaningful professional development were because they were able to network with other educators, gain content-specific knowledge, or acquire new teaching strategies. The remaining reasons were to examine teaching practices, digital literacy, observing other teachers, subject integration, and culture.

Ten percent of respondents' most beneficial professional development experiences involved collaboration. The responses mentioned myriad ways in which teachers collaborate with each other. Recounting the impact of a PLC, one teacher stated, "The PLC has been the most beneficial; the decision making skills and discussions can be carried outside the classroom." A language arts teacher shared that:

> Years ago, language arts teachers from all over the county used to meet at a designated school to share ideas, materials, and resources. We each brought something to share and demonstrate. I got tons of ideas and materials from those sessions that I still use today.

Another shared that the most beneficial professional development experience "was when I was in a PLC and the school provided substitutes while all teachers planned, compared data, and researched quality lessons." A thirteen year veteran revealed his satisfaction with online learning:

> I was amazed to be able to do collaborative work with different teachers from other counties in North Carolina and other states. I got to learn the organization of their foreign language programs and the strategies that make their face to face instruction more meaningful and successful. The isolation of foreign language teachers at our local level and the lack of cheap and/or accessible professional development in our field don't give me a clear picture on where we stand as a district in this field. At the same time, with many budget cuts, it is nearly impossible to be able to access professional development opportunities nearby.

Nearly one half of the reasons given for naming collaboration as the most meaningful were that teachers loved the opportunity to share ideas with their colleagues. Other reasons given included the acquisition of new teaching strategies, examining teaching practices, gaining content-specific knowledge, and observing other teachers. A few respondents indicated data analysis training and attending the North Carolina Center for the Advancement of Teaching (NCCAT) as their most meaningful professional development.

Obtaining and/or renewal of National Board Certification were the most beneficial professional development according to 9.5% of the respondents. One respondent summed it up by saying:

> Getting my National Boards in Early Adolescent Mathematics in 2000 changed the way I taught. It created a reflective teacher and teacher leader. There has never been an experience that affected my teaching more than this. I renewed in 2009 and that was also a valuable experience.

Still another fourteen year veteran summarized the National Board certification experience by discussing the benefit of reflection for teachers:

> National Board certification encompasses the whole student as well as the expectations of the teacher. If we do not take time to reflect on our practices then we do not realize the changes that need to constantly be made to improve the student learning and environment of the 21st Century student and their learning environment.

Three-fourths of the reasons given for National Boards being named as the most meaningful professional development included the opportunity to examine and reflect on teaching practices. National Board certification was also deemed as beneficial because it helped teachers acquire new teaching strategies, become more digitally literate, gave them specific content knowledge, and helped them better understand students.

Slightly more than three percent (3.4%) indicated their most meaningful professional development experience was either during the pursuit of an advanced degree or while involved in other coursework. A teacher seeking certification in academically and gifted instruction said of her experience, “I thought I knew what I was doing but I

have progressed to a whole new level as far as my knowledge of how to best bring effective teaching strategies to my gifted students." One shared the experience by saying, "Working on my Master's Degree enabled me to deepen my content knowledge as well as improve my classroom instruction."

Explanations for why pursuing an advanced degree or engaging in additional coursework was the most meaningful professional development varied: (a) gaining new teaching strategies, (b) having the opportunity to examine teaching practices, (c) reflecting on their work, (d) gaining specific content knowledge, (e) obtaining more insight into understanding the individual student, and (f) increased pedagogical knowledge.

Finally, one person (0.6%) elaborated on traveling abroad saying:

> The most beneficial professional development that I have experienced is when I went to India with several other teachers. It was meaningful because I learned about another culture, their history, experienced what it was like to live there, and learned about their educational system, which I was able to integrate into my lessons.

The focus group members detailed three professional development opportunities which they have found to be most beneficial. The value of training on brain-based learning was discussed and these teachers felt that more brain-based training would be beneficial to all middle school teachers. One teacher stated, "brains can be changed. We are teachers but more than that, we are professionals, and we need more knowledge about the brains of middle level learners in order to serve our students appropriately." Teachers also pointed out the value of summer professional development opportunities. One

teacher shared her experience from a North Carolina Teacher Academy summer workshop:

> It was a four-day workshop which I attended on my own time in the summer and found it to be quite valuable. The continuity of one day to the next, as well as the fact that I didn't have to worry about being out of class or working the next day, allowed me to reflect on what I learned and think about how I could apply it to my classroom.

Focus Group Responses

In addition to providing more insight into some of the research questions, the focus group provided more information on the professional development that teachers perceived as most aligned to the standard. The focus group attested to the value of PLCs, whether on site or district wide. Members mentioned that PLC time was spent on curriculum, data analysis, planning, and acquiring and learning to use various resources. Developing common assessments was also mentioned.

When asked what they perceived as the strength of their professional development program, focus group members said the secret was to "practice what works." Examples were given of the school improvement team that not only asked teachers what they needed, but actually tried to provide what teachers felt was considered necessary. One teacher said, "When it's done, then the buy-in is there; don't ask me what I want if you're not going to do it. Ask me and try to do it." The PLC was clearly valued by the teachers who said they "divided up duties, planned together, and each did our part."

Another professional development strength described by the focus group was the addition of subject area coaches at the elementary, middle and high school levels.

Teachers commented on the way teachers will "buy in and listen to what they have to say" when the "coach is a leader and has expertise in the field." Names and descriptions of the ways in which the coaches help throughout the school were readily given as teachers described teachers as "hungry for someone to come into their classroom" as teachers learn along beside them. One teacher said, "We need to see literacy coaches as an avenue for professional development; everyone needs to understand why they are here."

The observation was also shared that the middle school seemed to have less professional development than either the elementary or the high schools. When asked about the weaknesses of the professional development program, one shared the need for "ongoing support to implement what I've learned in my classroom." Further conversation revealed that teachers were sometimes discouraged when there were so many demands on them from mandated initiatives that little time remained for pursuing their own ideas and goals.

Focus group teachers also discussed the importance of student data and its effects on them as teachers and as a school. They explained their use of ClassScape and indicated that "we let the data drive our instruction and guide in developing our unit plans." They developed common assessments across grade levels. EVAAS™ data was portrayed as valuable in planning for the year, developing remedial classes, and providing an accurate determinant in placing students correctly. Data from Positive Behavioral Interventions & Supports (PBIS) was also mentioned as valuable when making decisions on ways to help students (Appendix R).

Though a small number of survey responses addressed the need for brain-based learning and more knowledge on the middle school learner, the focus group clearly expressed the need for more professional development in this area. Other professional development areas from the survey which the focus group particularly agreed with were collaboration, the importance of understanding and interpreting data, and the value of assessment training. Not surprisingly, the need for more time for professional development and collaboration was an area of concern for the focus group.

Chapter Summary

This study analyzed quantitative and qualitative data gathered from a researcher-designed survey and a teacher focus group to determine teachers' perceptions of professional development and the resources provided for it by their district during the 2009-2010 school year. Chapter Four reviewed the purpose of the study, restated the research questions, and described the sample. Findings of the study were reported for each research question. A brief description of the responses for each research question was shared to provide details on the teachers' perceptions. The study results indicate that, on average, teachers believe their professional development was either aligned or strongly aligned to the Learning Forward professional development standards.

Professional development content activities which impacted teachers' classroom practices and student achievement included specific instructional programs, technology, assessment, and content-specificity. Additionally, teachers cited professional development addressing the needs of middle level learners and examining best practices as impacting classroom practices and the needs of diverse learners as impacting student achievement. The form of professional development which a third of the teachers said

positively impacted classroom practices was collaboration. A summary of findings by research question is shown in Table 16.

Table 16

Summary of Findings by Research Question

Research Question	Findings
1	On average, teachers believe their PD was either aligned or strongly aligned with the factors included in the Learning Forward PD standards.
2	Gender, years of experience, subject(s) taught, or district size had no effect on PD.
3	Overall, there was no relationship between teachers' perceptions of the adherence to LF standards and their gender, years experience, subject(s) taught, and district size EXCEPT for 13-O Subject(s) Taught. Social studies teachers marked don't know significantly more than other teachers in the category of dealing with parents.
4	There was no relationship among the demographic variables and classroom practice and student achievement. For all variables, instructional strategies was listed as having the greatest impact.
5	As to their greatest need, 73% listed something that was content-specific and 26% listed some type of resource.
6	As their most beneficial PD Experience, 48% of the responses were related to content-specific PD and 50% related to the form of PD.

Chapter Five will present a review of the concepts of the study and a discussion of the key findings. The strengths, contributions, and limitations of the study will also be discussed. The chapter will also contain implications for future policy, practice, and research.

CHAPTER FIVE: DISCUSSION OF FINDINGS

The final chapter of this dissertation provides a brief review of concepts of the study and research questions, followed by a review of the methodology employed to investigate the research questions. A discussion of the key findings is provided. The significance of the findings and the implications of the study are discussed in the broad context of the framework of the study.

An integral part of any profession is the need for continual learning and a deepening of skills affecting the individual's areas of expertise (National Board for Professional Teaching Standards, 1989; Shulman & Sparks, 1992). The twenty-first century has brought numerous demands to educators and one of the most challenging is planning and implementing effective professional development for teachers. The knowledge base in education is growing rapidly as is the knowledge base in almost every academic discipline. Consequently, professional development, which equips educators to contribute to student achievement and strengthen classroom practices, is crucial to prepare the students of today for a future where needs are somewhat undefined, due to the rapidly changing communication and technological advances.: "The top ten in-demand jobs projected for 2010 did not exist in 2004. In today's world, individual and societal success increasingly depends on our capacity to learn. And societies rely, as never before, on our capacity to teach" (Davie, 2007, p. 2).

The purpose of this study was to examine middle school teachers' perceptions of whether or not the professional development in which they participated contributed to student achievement and positively affected classroom practices. The following questions were addressed in this study:

1. To what extent do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year was aligned with the Learning Forward Standards?
2. In what ways do western North Carolina's middle school teachers believe their professional development during the 2009-2010 school year had a positive impact on their classroom practices and student achievement?
3. Is there a relationship between western North Carolina's middle school teachers' perceptions of the adherence to Learning Forward Standards and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?
4. Is there a relationship between western North Carolina's middle school teachers' perceptions of the impact of professional development on their classroom practices and student achievement and the teachers' gender, the teachers' years of experience, the subject(s) taught, and the size of the district?
5. What do western North Carolina's middle school teachers perceive as their greatest professional development need?
6. What professional development experience do western North Carolina's middle school teachers say is the most beneficial experience of their career?

The Learning Forward professional development standards served as the conceptual framework of this study. Quantitative and qualitative research methods were utilized to examine the concepts of significance. A researcher-designed electronic survey was completed by 230 western North Carolina middle school teachers. The survey measured the teachers' perceptions of the impact that professional development had on

their knowledge of classroom practices and student achievement and their perceptions of whether the professional development was aligned with the Learning Forward Standards. To answer the research questions, the quantitative data were analyzed using frequency distributions and descriptive statistics, a Chi-square, and a Z-test. Qualitative data were analyzed by coding for themes (Creswell, 2005) on the teachers' perceptions of their experiences.

Following analysis of survey data, a focus group of six teachers from the district whose answers to the survey were second most closely aligned (see Chapter Three for explanation) with the standards was convened to provide further credence to the study. Quotes from the survey questions and the focus group provided insight into the individual teachers' perceptions of their professional development experiences.

Discussion of Findings of the Study

This section will discuss the key findings related to each of the six research questions of this study. The findings are summarized and linked to the previous research literature.

Teachers in this study believed their professional development was either aligned or strongly aligned with most of the items on the survey, which represented the standards. Interestingly, however, focus group participants did not have any knowledge whatsoever that either the Learning Forward Standards or the Professional Development Standards of North Carolina existed as published documents. They expressed regret over not being made aware of these standards and the researcher sent them a copy for their examination and use.

Professional Development Impact on Classroom Practice

Teachers indicated that learning about specific instructional programs (Appendix R) and collaboration with other teachers had the greatest positive impact on their classroom practices. Slightly over thirty percent of the teachers identified some type of instructional program as having the most positive impact on classroom practice. Specific examples were related to all four core content areas: language arts, mathematics, science, and social studies. Examples also included writing instruction and teaching the academically gifted learner.

It was clear from the teachers' responses that professional development that increased the teachers' knowledge of specific instructional programs and strategies was valued. Teachers elaborated on specific opportunities and gave reasons for naming the program(s) as supportive. One shared that through professional development she learned that sixth graders must be taught to "bridge the knowledge of math from concrete to concept to procedure." As Kennedy (1998) found, teachers must focus on *how* students learn subject matter in order to become cognizant of areas of confusion which students may have.

More than eighteen percent (18.4%) of the respondents noted the value of teacher collaboration and its positive impact on classroom practices. It was evident from survey responses that most of the teachers had participated in a PLC whether subject area, grade level, or district wide. Respondents discussed the importance of jointly developing lesson plans, examining student work, scrutinizing student data and collaborating on other matters related to the students, teachers, school, and district. One teacher noted the positive impact of the grade level's communication through the PLC and its benefit to

students, remarking that students knew their teachers worked well as a team and "that has spread to our entire seventh grade." DuFour, DuFour, and Eaker (2008) described collaboration in a PLC as "a systematic process in which teachers work together, interdependently, to analyze and impact professional practice in order to improve results for their students, their team, and their school" (p. 16). Sparks and Hirch (1997) have shown that when effective learning for teachers takes place during the school day, student achievement improves and change is sustained over time. This finding also supports research showing teachers will learn more when given the opportunity for sustained discussion on classroom practices (Zepeda, 2010).

Professional Development Impact on Student Achievement

Similarly, teachers indicated that learning about specific instructional programs and collaboration with other teachers had the greatest positive impact on student achievement. More than thirty-eight percent (38.1%) of respondents indicated specific instructional programs as the number one factor having a positive impact on student achievement while nearly 19% (18.7%) of them stressed the importance of teacher collaboration. The value of additional training in mathematics, science, healthful living, vocabulary instruction, and music was shared by teachers. One teacher explained how a new strategy for teaching sight-reading led to her students earning a high score at a music festival. Earlier research found teachers understand how students typically learn a particular subject when they themselves possess a well developed pedagogical content knowledge (Fenneman et al., 1992). In a late 1990s study of teachers who participated in the Eisenhower Professional Development Program, findings revealed that when teachers' professional development experiences were directly linked with their daily

experiences and aligned with standards and assessments, they were more likely to change their instructional practices. Furthermore, teachers were likely to gain greater subject knowledge and improve their teaching skills. Also student achievement was found to increase when professional development was focused on subject matter, provided teachers with opportunities for hands-on practice, and was integrated into the daily work of the school (Garet et al., 2001).

Nearly nineteen percent (18.7%) of the respondents named collaboration as the second most important factor positively impacting student achievement. Repeatedly, teachers shared evidence of both increased student interest and increased student achievement based largely on teaching strategies gained through collaboration. Novice and veteran teachers alike explained how teachers met in small groups to discuss research and methodology, pooled resources to adapt units of study, developed pacing guides, and incorporated technology into their instruction. Like other researchers have found (Diaz-Maggioli, 2004; DuFour et al., 2008; Joyce & Showers, 2002; Speck & Knipe, 2005), collaboration among educators "within a community of learners" leads to individualized impact for students (Pate & Thompson, 2003, p. 140). Middle school educators have long recognized that with regard to student learning, relationships matter. The concept of teaming, two or more teachers sharing the instructional day with the same group of students, is a part of the middle school concept (Jackson & Davis, 2000). For middle school teachers, teams provide the kind of collaborative work group that is increasingly viewed as vital to organizational productivity across a wide range of professions. The responses of the focus group strongly support collaboration.

The flexibility of teaching multiple grade levels or subjects in addition to collaborating on interdisciplinary teams means professional development can be heightened. In addition, the practice of teaming and looking at student work together in small groups fosters a sense of professional community. The National Education Association (2003) believes, "When teachers analyze and discuss instructional practice and the resulting samples of student work, they experience some of the highest caliber professional development available" (p. 2).

A leading expert on organizational behavior, Peter Senge, calls workplace teams "essential to enable professionals to learn together and to take advantage of collective thought that goes beyond the understanding of any one individual" (Senge, 1990, p. 10). Jackson and Davis (2000) contend that the ongoing dialogue of teachers on a team is potentially the most powerful form of professional development for middle school teachers, especially when it regularly focuses on student work to assess student learning and guide instructional strategies. As teams search for evidence, prod, probe, conjecture, look at student work, and celebrate small successes, they are *creating* their own professional development. Jackson and Davis (2000) refer to this as "the promise of middle school teams" (p. 128).

Collaboration on teams in middle schools, as in other organizations, is not the norm. Still, when teams do reach their full potential, key structural characteristics and the quality of interaction among teachers on the team are important factors. The most important elements are group cohesion and harmony and team decision making. Mertens, Flowers, and Muhall (1998) found that these factors received higher ratings when teams had high levels of common planning time.

Relationships of Adherence to Standards and Subject(s) Taught

For research question three, the only significant relationship was between middle school teachers' perceptions of the adherence to the Learning Forward Standards and subject(s) taught under survey item 13-O ("Professional development provided me with knowledge and skills to involve families and other stakeholders").

Overall, 45% agreed or strongly agreed, 40% disagreed or strongly disagreed, and 15% stated they did not know if the statement, "Professional development provided me with knowledge and skills to involve families and other stakeholders" was true. The results of the Chi-square indicated that social studies teachers responded differently from the other categories of teachers. According to the responses from social studies teachers, there was variability in the quality and quantity of professional development in social studies. Of the social studies teachers responding, 33% agreed or strongly agreed with the statement, 24% disagreed or strongly disagreed, and 43% stated they did not know. Because social studies and non-core subjects are not part of the testing for accountability that takes place in North Carolina schools, it is speculated that social studies and non-core teachers were given fewer professional development opportunities than the core teachers in science, mathematics, and language arts. In fact, 42.9% of the teachers who taught only social studies responded they did not know, compared to 7.7% of the teachers who taught social studies along with another core subject. The researcher believes the category of "Don't Know" affected the quality of the responses. If the researcher designs a future survey, the Likert scale choices would either not include the category of "Don't Know" or the "Don't Know" category would be at the end of the five choices, rather than in the center.

Impact of PD on Classroom Practice and Student Achievement Based Upon Demographic Variables

There was no relationship among the demographic variables and classroom practice and student achievement. The results of this study are not in keeping with a large body of research which indicates a positive correlation between teaching experience and higher student achievement (Darling-Hammond, 1998; Sanders & Rivers, 1998; Wei et al., 2010).

At the beginning of this study, the researcher suspected there may be a relationship between classroom practice and student achievement in larger districts due to the availability of resources. Hannaway and Kimball (1998) found that larger districts promote reform better than smaller districts because larger districts' structures lead to better learning organizations than smaller districts. The findings of this study clearly do not support this premise.

Greatest Professional Development Need

More than 73% of the teachers' responses regarding their greatest professional development need centered on the content of the training they needed to receive. These needs included content-specificity (14.1%), technology integration (13.0%), developmental needs of the adolescent (10.9%), academic needs of the adolescent (10.9%), differentiated instruction (10.3%), strategies for exceptional children (7.1%), assessment/data analysis training (3.8%), and parental involvement (1.6%). Over 26% (26.7%) of the teachers reported their greatest professional development need was focused upon acquiring critical resources. Included were more time for professional development (20.7%) and funding for materials/conferences (6.0%). Teachers stated

they needed time for working collaboratively, developing lessons, grading papers, attending instructional meetings, meeting with parents, and engaging in professional development. The frustration felt by teachers as related to the issue of time was clear. One teacher wanted time to explore approaches to help her students "become creative, motivated, and excited" while another lamented there was not "time to digest the information let alone make wonderful plans to implement all that we learn."

Focus group members also discussed the need for more quality time, expressly for collaboration as a professional learning community. The teachers were in agreement that to ensure the effective use of a teacher's time, careful planning must occur to avoid being consumed. The number of different responsibilities and opportunities a teacher holds continues to expand due to the high stakes of accountability and consumer demand. One teacher remarked that time was an issue for her because she taught two subjects and was "required to attend PLCs in both subjects each week" plus "do the other things which you must do/attend each week." DuFour et al. (2008) contend that, historically, educators viewed school improvement efforts as programs rather than processes. When PLCs become part of the school culture, the "faculty recognizes that they *are* a PLC; they do not *do* PLCs" (p. 21).

The concern for more time is not new; the demands on teachers' work time often leaves little time for substantive learning about new research on ways to improve student learning (Guskey & Peterson, 1996). Time for educators must be directed toward curricular and instructional strategies to ensure students gain a content and skills knowledge base that will enhance their future learning ability (Joyce & Showers, 2002). Furthermore, educators need regular meeting times and must commit to wise use of

professional learning time whether to increase their own knowledge of research-based learning strategies or find answers to student learning challenges (Gleason, 2010).

Content-specific professional development was indicated by 14.1% of the teachers as their greatest professional development need. Needs included more strategies for use within their own subject area, opportunities to learn more about their respective content areas, and time for collaboration with other teachers in their respective subject areas. However, a 2009 national study of content-related professional development found that none of the professional development studied met the criteria suggested. The researchers concluded that "much professional development focuses on academic subject matter, but not with much depth" (Darling-Hammond et al., 2009, p. 20). Hence, for content-specific professional development to be effective, developers and those who deliver professional development must be very intentional about their goals and the strategies they use.

Additionally, teachers must possess knowledge of real-world applications of the content they teach. One of the five core propositions of the National Board for Professional Teaching Standards (1989) states that "Teachers know the subjects they teach and how to teach those subjects to students" (NBPTS, 1989). In order to promote student learning, teachers need opportunities to learn content in ways it will be linked to the classroom: "To teach in the ways envisioned by standards reformers, teachers need strong content knowledge and the ability to change their pedagogical repertoire as well as their underlying beliefs and attitudes about it" (Snow-Renner & Lauer, 2005, p. 3).

The focus of instruction has shifted over the past few years from one presenting factual, surface level information to an environment where the teacher is a facilitator and

students are engaged with each other as well as the academic content. One of the most critical elements of teaching and professional development is teacher expertise within their subject area(s). Teachers readily confirmed that simply knowing the subject is not enough; teachers must be well grounded in the pedagogical content knowledge, assisting students in making connections with the new knowledge and their existing knowledge and previous experiences. Little (2006) maintains that, of all professional development related activities, the most valuable is that which is "focused on subject knowledge for teaching" (p. 8). She further states that a "sustained focus on subject teaching-strongly tied to the curriculum, instruction, and assessment that students would encounter-produces the most consistent effect on subject teaching and student learning" (p. 8). Teachers must be confident and competent as they allow students to problem solve and be able to identify areas in which students need further guidance.

The integration of technology into the curriculum and classroom practice was given as the greatest professional development need by 13.0% of the respondents. Specific needs were more knowledge of technology, training in the use of technological tools, and instruction on incorporating technology into lesson formats. From a study on technology integration and a review of the research, Grant (1996) alleged "professional development for technology integration is most effective when it is in the context of curriculum content, effective pedagogy, and student learning, not focused on the technology itself " (p. 2). Simply providing training for teachers is not effective; technology programs should be meshed with a professional culture in schools in which reflection and collaboration exist within the context of action.

More recently, Apple Classrooms of Tomorrow-Today (2008), proposed that "Educators must become more than information experts; they must also be collaborators in learning - leveraging the power of students, seeking new knowledge alongside students, and modeling positive habits of mind and new ways of thinking and learning" (p. 8). Today's educators must have sustained professional development opportunities to gain the skills and knowledge necessary for using technology effectively in the classroom to meet the needs of learners.

Teachers, both in the survey and the focus group, indicated the need for more professional development in the specific needs of the adolescent, both developmental and academic. One teacher stated the need for "understanding how their brains work" and others said they wanted to better understand their students' "developmental process." It is crucial that middle school teachers possess a deep understanding of the middle level learner and the best practices of middle level education. Continuous professional development should be woven into the daily school activities and tied to the goals of the school (NMSA, 2003). Academic areas specifically addressed were the need for more understanding of the learning process of the adolescent, the needs of the low achieving student, and the instructional needs of the exceptional student.

Professional development planners should collect better data on various professional development and relate these to certain outcomes. DuFour et al., (2008) suggest that schools and teachers have ample amounts of data, but lack information on how to use these data to improve their classroom practices or their students' achievement. Teacher responses indicated a need for more training in developing assessments and analyzing data to determine areas of student need in order to improve their instruction.

Professional development in the use of data is vital to ensure teachers know and use effective techniques when assessing student learning: "Assessments used in the classroom should increase relevant feedback to students, teachers, parents, and decision-makers and should be designed to continuously improve student learning and inform the learning environment" (ACOT², 2008, p. 4).

What are best practices in professional development? Improvement is needed for professional development planners and administrators to determine what works. Professional development should be planned with the end in mind; plans should begin with a clear purpose outlined for the professional development with steps in place to measure its effectiveness. Program evaluation should be conducted to determine the results of all professional development activities which would enable all involved to eventually be able to explain what works.

Most Beneficial Professional Development Experiences

Survey responses were divided into two categories: content of professional development and form of professional development. Nearly sixty percent (58.3%) of the respondents reported that content professional development was the most beneficial to them. Included in this classification were content-specific professional development (17.6%); specific instructional programs (14.8%); technological literacy and/or training (5.0%); classroom management (4.4%); differentiated instruction (3.3%); and a poverty workshop (1.7%).

Secondly, the form of the professional development can be classified into six categories of delivery of professional development and included district/school sponsored

(14.3%), conferences (11.5%), collaborative experiences (9.9%), National Board certification (9.3%), advanced degrees/coursework (3.3%), and travel abroad (0.6%).

Teachers reported the most beneficial professional development experience of their career was content-specific. This finding supports the research of Sparks (as cited in Pate & Thompson, 2003) who proclaimed that for middle school teachers, professional development that addresses "academic content" was more likely to have "sustained" and "significant impact in the classroom" (p. 129). In summary, then, the middle school teachers in this study indicate that the most beneficial professional development of their career is that which is district/school sponsored and centers on the content they are teaching or the specific programs they are implementing in their school.

Strengths and Contributions of the Study

This study addressed a gap in the research related to western North Carolina's middle school teachers' perceptions of their professional development experiences and the resources provided for it. This researcher did not find a study on professional development specific to North Carolina or the middle schools of western North Carolina.

A strength of this study was the use of both quantitative and qualitative data. The quantitative data provided teachers' perceptions of alignment with the Learning Forward Standards, adherence to Learning Forward Standards as indicated by gender, years of experience, subject(s) taught, and the size of the district, and the impact of professional development experiences on student achievement. Qualitative data obtained through open-ended questions and focus group responses provided insight on teachers' perceptions of the impact of their professional development experiences during the 2009-2010 school year on classroom practice and student achievement; the relationship

between the impact of professional development on their classroom practices and student achievement; and the teachers' gender, years of experience, subject(s) taught, and size of the district. Additionally, qualitative data revealed teachers' perceptions of the teachers' greatest professional development need and their explanation of the most meaningful professional development experience of their career. Valuable information for professional development leaders and school administrators is provided by this study. For example, it is clear that over 70% of the teachers in this survey perceived a need for professional development based on specific content area. Teachers also indicated the value of opportunities for collaboration and participation in professional learning communities. Collaboration with colleagues was reported as having the most impact on both classroom practices and student achievement, so opportunities should be given for teachers to work together regularly. In current economic times, this is great news because collaboration within the school will save time and money. This may require examination of work schedules and changes in school calendars to allow more time for professional development through collaboration during the school day. Additional support may be needed for teachers to make effective use of the professional learning community. This study also shows that teachers find the professional development they receive within their own schools and districts to be the most beneficial. Such offerings also save time and money for the district.

Another potential strength of this study was the researcher's background as a middle school teacher that allowed for probing of the responses of the focus group more fully. Having spent thirteen years in the middle school as teacher and assistant principal, the researcher understands the structure of the middle school and the challenges of

working with middle level students. This background allowed for deeper questioning and application of the results to the study in the context of middle school in making recommendations for improvement.

Limitations

Since the study was designed to examine middle school teachers' perceptions of professional development, it is limited to the 21 middle schools in eight districts whose teachers chose to participate in the study. The study did not include charter, alternative schools, private schools, or other non-traditional schools. The study was limited to teachers' perceptions of the professional development experiences; therefore, the impact of professional development on the teachers' practice and student achievement was not determined.

Another limitation is that of the principals' choice when selecting a teacher from their school to participate in the focus group because the selection was not made at random. These teachers may not have been candid with their responses or may have chosen not to share information. The impact of professional development on classroom practices and student achievement may be perceived differently by teachers working in other regions or states. Additionally, the perceptions of other teachers who chose not to participate in the survey may potentially be different than those who participated.

This study was limited to the scope of the selected standards examined in this study and the researcher may not have been able to determine whether the teachers understood the questions they are being asked. Additionally, accuracy of recall is a limitation since some of the professional development opportunities in which teachers participated may have occurred almost one year earlier. Other limitations of the study

include the possibility that the respondents may have given socially acceptable answers to the questions and issues related to the analysis of qualitative data.

This study was delimited to the 2009-2010 academic year. Since this study delimits the participants to one region from only public middle schools with grades six through eight in western North Carolina, the study results are not generalizable to other states, regions, or types of schools; however, the inclusion of the qualitative questions on the survey and the focus group interviews may have enhanced the transferability of the results to other locations. The study was conducted in the fall of 2010; therefore, it does not include teachers who left their school location at the end of the 2009-2010 school year.

Implications for Future Research

More research is needed that investigates the relationship between high quality professional development and student learning outcomes. School districts should have reliable systems for evaluating the impact of professional development on teachers' practices and student learning. Each professional development activity should be evaluated to ensure the activity is beneficial and cost effective (Snow-Renner & Lauer, 2005).

This study warrants further study of PLCs. What do PLCs look like in each middle school? Are they held during a grade level planning, after school, as in-service workshops, or by subject area? Are all faculty members involved in the PLC? More importantly, does the PLC impact classroom practices and student achievement?

Beginning with the 2011-2012 school year, all North Carolina districts must develop a plan for all certified teachers which measure their effectiveness. At that time, a

study could be conducted to look at the relationship between the teacher's effectiveness rating and the professional development they reported as having the greatest impact on classroom practices and student achievement.

Implications for Policy

Studies are warranted to determine the types of changes which need to be made to federal, state, and school district policies regarding professional development. Policy makers should make certain that professional development focuses on the subject matter teachers will be teaching. This study clearly indicates that teachers perceive content-specific professional development as needed and valuable. Professional development should align teachers' learning opportunities with their real work experiences, using actual curriculum materials and assessments.

Professional developers should advocate for teachers to spend a greater number of hours participating in well-designed professional development. Adequate time should be provided for professional development and ensure that the extended opportunities to learn emphasize observing and analyzing students' understanding of the subject matter. The National Middle School Association and Learning Forward agree on the amount of time a teacher should be engaged in professional development. Schools should dedicate ten percent of their budget, excluding salaries and benefits, to professional development and devote at least 25% of a teacher's work time to learning and collaborating with colleagues (NSDC, n. d.). Teachers in this study indicated that collaboration and instructional strategies had the most impact on classroom practice, so it is prudent for policy makers to examine school calendars to create more time for learning together during the school day.

North Carolina's calendar law was revised effective with the 2005-2006 school year; this revision meant a loss of five non-instructional days (North Carolina General Statutes - 115C). It would be wise for legislators to add these five days back to the calendar for the purpose of professional development. This study, without a doubt, indicates teachers feel they do not have enough time for professional development. This legislative change would serve to ensure that North Carolina's teachers would be better equipped to improve their classroom practices, thereby increasing student achievement.

Implications for Practice

This study highlights the important roles which professional development planners and school principals play in the design and implementation of professional development. Professional development planners should strive to guarantee that professional development is of a high quality and addresses the needs of teachers, ultimately addressing the learning needs of students. A variety of professional development models should be offered for teachers to attend, including program-based and content-specific professional development. Middle level teachers have different needs for professional development that are related to factors such as their teaching experience and their certification (Flowers & Mertens, 2003). Emphasis should be placed on determining professional development needs at the individual schools by working in conjunction with the school improvement team to achieve a combination of district and site-based experiences.

Professional development in technology integration should continue to be provided. Teachers in this study indicated a need for more professional development in the use of technology; undoubtedly, technology will play a crucial role in both adult and

student learning in the twenty-first century. It is imperative that all teachers are given the tools and the professional development needed to equip them in effectively using technology to enhance student learning.

The building principal plays a pivotal role in student achievement and classroom instruction by serving as a bridge between most educational reform initiatives and their consequences for students. Recent research has defined the three most important aspects of a principal's job as "(a) developing a deep understanding of how to support teachers, (b) managing the curriculum in ways that promote student learning, and (c) developing the ability to transform schools into more effective organizations that foster powerful teaching and learning for all students" (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005). To be an effective professional development leader, the principal must understand how to improve student learning and achievement. Lindstrom and Speck (2004) suggest "continuous professional development within the school provides the context, content, and process that helps create the changes in teacher classroom practices and school culture."

To ensure effective professional development, the principal needs a deep and broad knowledge base of the curriculum. He/she must serve as the instructional leader, remaining focused and keeping the professional development on track. Shared leadership through the school community, under the direction of the principal, provides the direction of the professional development work. Of all factors contributing to what students learn at school, effective leadership at the school level is second only to that of classroom instruction (Leithwood, Louis, Anderson, & Wahlstrom, 2004).

Conclusion

This study analyzed quantitative and qualitative data gathered from a researcher-designed survey and a teacher focus group to determine teachers' perceptions of staff development and the resources provided for it by their district during the 2009-2010 school year. The types of quantitative data analyzed included teachers' gender, teachers' years of experience, subject(s) taught and size of the district, as well as the fixed item responses (e.g. Likert scale items) on the survey. Data on each of these variables were obtained from the survey. The types of qualitative data analyzed included the most beneficial professional development experiences which the teachers described as well as those teachers believe impacted their classroom practices and student achievement. Teachers were also asked to identify their greatest professional development need. Additionally, qualitative data was obtained from the focus group responses.

A conceptual framework based upon the Learning Forward professional development standards guided this study. These standards focused on the content, context, and process of professional development.

The study results indicate that on average, teachers believe their professional development was either aligned or strongly aligned with the factors included in the Learning Forward professional development standards. However, none of the members of the focus group were familiar with the Learning Forward Standards nor were they familiar with the North Carolina Professional Development Standards.

The form of professional development which teachers said positively impacted both classroom practices and student achievement was collaboration. The content of professional development activities which impacted both teachers' classroom practices

and student achievement included specific instructional programs, technology, assessment, and content-specificity. Additionally, teachers cited professional development addressing the needs of middle level learners and examining best practices as impacting classroom practices and the needs of diverse learners as impacting student achievement.

In summary, the results of this survey are totally immersed in the three key concepts of Learning Forward Standards: context, process, and content. Within context standards, the elements of learning communities and leadership focus on goals that are aligned with the school and district as determined by school and district leaders, while the area of resources focuses on time, materials, and funding required for the support of adult learning and collaboration. These standards emphasize the need for continuous, collective collaboration among all stakeholders, including board of education members, principals, district administrators, and faculty and staff members. Within process standards, using student data assists teachers in determining curriculum priorities, monitoring student progress, and sustaining continuous improvement. Also, the process standards use goal-oriented learning strategies for educators to apply knowledge of human learning in a collaborative environment. Finally, the content standards reinforce content knowledge with new research-based instructional strategies that enable educators to understand and appreciate student needs while holding high expectations for their academic achievement. In addition, this standard emphasizes the need for safe and orderly supportive learning environments that involve families and other community stakeholders. It takes each of these components to insure an educator's professional

development opportunity is "results-driven, standards-based, and job-embedded" (NSDC, 2008a, p. 1).

Effective professional development will always include these elements. A key finding was that over 73% of the teachers believed their greatest professional development need centered on the content of their professional development. Included were content-specific activities, technology integration, developmental needs of the adolescent, academic needs of the adolescent, differentiated instruction, strategies for exceptional children, assessment/data analysis training, and parental involvement needs. Over twenty-six percent of the respondents reported their greatest professional development need was resources for professional development, specifically having more time for professional development and funding for materials and attending conferences.

Nearly sixty percent of the respondents reported the most beneficial professional development experience of their career was related to the content of professional development. Identified themes included content activities, specific instructional programs, technological literacy and/or training, classroom management, differentiated instruction, and a poverty workshop.

Almost forty percent of the teachers described their most beneficial experience was related to the form of their professional development. Responses include professional development experiences which were district/school sponsored, conferences, collaborative experiences, National Board Certification, earning advanced degrees or completing coursework, and travel abroad.

Although the results of this study are not generalizable, the detailed nature of the qualitative data in this study makes the results transferable to other populations with

similar situations. Readers of this study can examine this data and make comparisons to their own situation, ultimately making the determination of whether these results are relevant to their individual circumstances. Though there are no absolute answers, transferability of this research by practitioners allows the data to be sorted, modified thus facilitating informed conclusions which can be used to determine best practice.

The results of this study have implications for practice for all administrators and professional development planners. Mr. Smith initially wondered, "What should the focus of our professional development be?" To impact both student achievement and classroom practice, professional development should focus on specific instructional programs. Teachers' survey and focus group responses emphasized the importance of these programs and the value of the sustained, ongoing training to gain a more thorough understanding of the program. Additionally, program evaluation must look at the relationship between professional development and student achievement (and other important student outcomes) so that professional development opportunities can be clearly linked to impact on students. Smith's second question was, "Were professional development learning communities utilized appropriately?" From the respondents' answers both in the survey and from the focus group, it was obvious that each district had professional learning communities in place. However, the teachers' responses and the research made it clear that work still needs to be done for the professional learning community to be "who they *are"* rather than "what they *do*" (DuFour et al., 2008, p. 21). The school cannot recognize the full benefit of the professional learning community until this occurs. Finally, Mr. Smith asked, "What professional development did teachers find most valuable?" Teachers reported their most beneficial professional development as

being content-specific, and directly related to the subject area which they taught. Additionally, teachers found activities sponsored by their school and/or district to be more valuable than any other forms of professional development.

The results of this study clearly indicate that teachers have strong opinions about their professional development activities. Most beneficial are those that relate to specific subject areas and the instructional programs which support those areas. Teachers also need opportunities to collaborate with their peers to discuss instructional issues and make efficient use of their time. These efforts will provide teachers with the tools they need to improve classroom practices and increase student achievement, the exact purposes for which professional development is intended.

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APPENDIX A

NSDC's Standards for Staff Development (Revised, 2001)

Context Standards

Staff development that improves the learning of all students:
Organizes adults into learning communities whose goals are aligned with those of the school and district. (Learning Communities)
Requires skillful school and district leaders who guide continuous instructional improvement. (Leadership)
Requires resources to support adult learning and collaboration. (Resources)

Process Standards

Staff development that improves the learning of all students:
Uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement. (Data-Driven)
Uses multiple sources of information to guide improvement and demonstrate its impact. (Evaluation)
Prepares educators to apply research to decision making. (Research-Based)
Uses learning strategies appropriate to the intended goal. (Design)
Applies knowledge about human learning and change. (Learning)
Provides educators with the knowledge and skills to collaborate. (Collaboration)

Content Standards

Staff development that improves the learning of all students:
Prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and hold high expectations for their academic achievement. (Equity)
Deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately. (Quality Teaching)
Provides educators with knowledge and skills to involve families and other stakeholders appropriately. (Family Involvement)

APPENDIX B

SURVEY QUESTIONS

DEMOGRAPHIC INFORMATION

1. Gender of respondent?
_____Male _____Female

2. How many years' experience do you have as an educator?
_____year(s)

3. What subject(s) did you teach during the 2009-2010 school year? *(Check all that* apply)

____Language Arts
____Math
____Science
____Social Studies
____Physical Education
____Foreign Language
____Career Development
____Computer Skills/Keyboarding
____ Business
____Health
____Other (Other-please list)

4. Was your school organized into teams during the 2009-2010 school year?

____Yes
____No

5.In which district did you work during the 2009-2010 school year?

_____ County
_____ County
_____ County
_____ County
_____ County
_____ County
_____ County
_____ County

6. Did you have a common planning time during the 2009-2010 school year?

____Yes (If Yes, skip to question 7)
____No (If No, skip to question 8)

7. If so, how many minutes?

_____Per Day
_____Per Week

STAFF DEVELOPMENT OPPORTUNTIES (Please answer questions as they apply to the 2009-2010 school year. Check the phrase which *best* describes your answer).

8. Was there a Professional Learning Community (PLC) in your school during the 2009-2010 school year?
   _____Yes
   _____No (If No, skip to question 10)

9. Did you participate in a Professional Learning Community (PLC) in your school during the 2009-2010 school year?
   _____Yes
   _____No (If No, skip to Question 10)

10. If you participated in a Professional Learning Community (PLC) during the 2009-2010 school year, to what extent do you believe the goals of the PLC are aligned with the goals of your school?

Completely Aligned	Aligned	Somewhat Aligned	Not at all Aligned	Don't Know

11. A substitute was provided, if needed, for me to participate in professional Development during the 2009-2010 school year.
    Always Most of the Time Sometimes Rarely Never

12. Materials were furnished for me to use with the content learned in professional Development during the 2009-2010 school year.
    Always Most of the Time Sometimes Rarely Never

13. Please indicate your level of agreement with the following questions:

1	**2**	**3**	**4**	**5**
Strongly Agree	**Agree**	**Don't Know**	**Disagree**	**Strongly Disagree**

A. At my school, student data were used to determine learning priorities for teachers.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

B. Time was allotted for me to participate in professional development, including

PLCs.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

C. Time was allotted for professional learning communities and collaboration in my school.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

D. At my school, student data were used to monitor the progress of teachers.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

E. At my school, student data were used to help sustain continuous improvement.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

F. Professional development prepared me to use research for decision making.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

G. Professional development included strategies appropriate for the intended goal.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

H. Professional development provided me with the knowledge and skills for collaboration.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

I. Professional development prepared me to understand and plan for the needs of middle level learners.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

J. Professional development prepared me to create a safe, orderly and supportive learning environment.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

K. Professional development helped me to hold high expectations for academic achievement.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

L. Professional development extended my content knowledge.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

M. Professional development provided me with research-based instructional strategies that assist middle level learners in meeting rigorous academic standards.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

N. Professional development prepared me to utilize various types of classroom assessment appropriately.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

O. Professional development provided me with knowledge and skills to involve families and other stakeholders appropriately.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

P. Professional development impacted my students' achievement.

1	2	3	4	5
Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

14. In which of the following forms of professional development did you participate during the 2009-2010 school year? (*Choose all that apply. On-site refers to your campus and On-line refers to Internet.*

A._____ On site, one session
B._____ On site, face to face, more than one session
C._____ Online learning
D._____ Conference, 1 day
E._____ Conference, 2-4 days
F._____ On site, collegial planning & study groups
G._____ Professional Learning Communities (PLC)

H._____ National Board certification
I._____National Board renewal
J._____Other, please specify

15. From the list of professional development delivery modes/types that you participated in during the 2009-2010 school year, rate each from 1 to 5 with 5 being very helpful and 1 being not helpful. (On-site refers to your campus and On-line refers to Internet).

1	**2**	**3**	**4**	**5**	**6** **Did not participate in 2009-2010**
A. On site, one session					
1	2	3	4	5	6 Did not participate in 2009-2010
B. On site, face to face, more than one session					
1	2	3	4	5	6 Did not participate in 2009-2010
C. Online learning					
1	2	3	4	5	6 Did not participate in 2009-2010
D. Conference, 1 day					
1	2	3	4	5	6 Did not participate in 2009-2010
E. Conference, 2 - 4 days					
1	2	3	4	5	6 Did not participate in 2009-2010
F. On site, collegial planning & study groups					
1	2	3	4	5	6 Did not participate in 2009-2010
G. Professional Learning Communities (PLC)					
1	2	3	4	5	6 Did not participate in 2009-2010
H. National Board Certification					
1	2	3	4	5	6 Did not participate in 2009-2010
I. National Board renewal					

1	2	3	4	5	6
					Did not participate in 2009-2010

J. Other

1	2	3	4	5	6
					Did not participate in 2009-2010

16. From the professional development you participated in during the 2009-2010 school year; indicate which of the following delivery modes/types resulted in the outcomes listed in A-L below. *(Choose all that apply)*

1	**2**	**3**	**4**	**5**	**6**	**7**
On-Site	**Online**	**Conference**	**PLC**	**Collegial Planning/Study**	**National Board**	**Other**

A. Prepared me to use research for decision making.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

B. Includes strategies appropriate to the learning goal.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

C. Provided me with the knowledge and skills to collaborate with others.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

D. Prepared me to understand and plan for the needs of middle level learner.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

E. Prepared me to create a safe, orderly and supportive learning environment.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

F. Helped me to hold high expectations for academic achievement.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

G. Extended my content knowledge.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

H. Provided me with research-based instructional strategies that assist middle level learners in meeting rigorous academic standards.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

I. Prepared me to utilize various types of classroom assessments appropriately.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

J. Provided me with knowledge and skills to involve families and other stakeholders appropriately.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

K. Impacted my students' achievement.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

L. Impacted my own classroom practice.

1	2	3	4	5	6	7
On-Site	Online	Conference	PLC	Collegial Planning/Study	National Board	Other

OPEN-ENDED RESPONSES – Please share as much as you like.

17. Share one example of how your professional development during the 2009-2010 school year, including professional learning communities, impacted your own classroom practice.

18. Share one example of how your participation in professional development during the 2009-2010 school year, including PLCs, impacted your students' achievement. Describe the professional development focus. Describe the evidence of impact on student achievement.

19. Reflecting on your educational career, describe the ***most beneficial*** professional development you have experienced. Explain why it was meaningful.

20. As a teacher of middle level learners, what do you see as your top three greatest professional development needs?

APPENDIX C

Principal's Letter

_____Principal, _____ Middle School
Address
Date

Dear_____,

I am a doctoral student at Western Carolina University and am interested in surveying middle school teachers in _____County. I am asking for permission to have four of your teachers complete the pilot test and provide feedback for making improvement to my survey instrument. I plan to ask these teachers to complete the survey electronically. I am trying to isolate some variables related to teachers' perceptions of the professional development in which they participate. The survey instrument does not ask any questions on student performance or district policy. Instead, it asks questions pertaining to professional development, perceived opportunities available to teachers, delivery mode/time frames of professional development, the impact professional development has on the teacher's classroom and student achievement. A sample of the survey is enclosed for your review.

The names of participating teachers, schools, and the district will be kept confidential. A summary of the statistical findings will be included in my dissertation. I have attached an informed consent form for your acceptance or decline of my request to survey the middle school teachers at _____ Middle School.

A self-addressed, stamped envelope is enclosed. Please reply by _____. If you have any questions, please do not hesitate to contact me at (828) 429-4562, by fax at (828) 245-1451, or you can email me at mrobinson@rcsnc.org. You may also contact my faculty advisor, Dr. Sandra Tonnsen, at (828) 227-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina University IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323.

Thank you for your time and consideration of my request.

Sincerely,
Martha Harrill Robinson
Director of Human Resources
Rutherford County Schools

Enclosures

APPENDIX D

Informed Consent Form – Principal

I _____ give permission

_____ do not give permission

for the four 6-8 middle school teachers from _____ Middle School in _____ County School System to participate in Martha Harrill Robinson's pilot test survey.

If you would like to receive a copy of my summary findings from the study, please check the preferred method for use in sending the results:

____Email
(Email
address)_____

____Regular Mail
(Mailing
Address)_____

Signature_____ Principal

_____ Date

APPENDIX E

Letter to Teachers Conducting the Pilot Test

382 West Main St.
Forest City, NC 28018
November 25, 2009

Dear Teachers:

Thank you for agreeing to pilot test my survey concerning teachers' perceptions of professional development in the middle schools of western North Carolina. The purpose of this pilot test is to eliminate any "flaws" in the survey instrument thus strengthening the validity of the study. Below are a few suggestions that may help you as you examine and complete the instrument.

Complete the survey as best you can. After you have taken the survey, please write any concerns, questions, or corrections on the Feedback Form. Also make a note of any questions that are poorly written, unclear, wordy, or contain technical language.
Feel free to add any survey questions that you feel are pertinent to professional development.
Please write the time, in minutes, that it took you to complete the survey. This will help me with redesigning the survey.

After you are finished, please email the questionnaire and Feedback Form back to me at mrobinson@rcsnc.org. Your assistance with this pilot test is greatly appreciated. If you have any questions, please contact me at (828) 429-4562.

Sincerely,

Martha Harrill Robinson
Doctoral Candidate
Western Carolina University

APPENDIX F

Feedback Form

Dear Middle School Teachers:

Thank you for taking the time to review the survey instrument which I will use to collect data on the perceptions of western North Carolina middle school teachers on the quality of, and resources provided for, professional development.

The survey contains 18 questions. First, complete the survey. Then, answer the following questions regarding the survey.

1. Are any of the questions poorly written or unclear? Yes No
   If yes, which ones?
2. Are any of the questions too wordy? Yes No
   If yes, which ones?
3. Do any of the questions contain technical/confusing language? Yes No
   If yes, which ones?
4. Do any of the questions need clarification? Yes No
   If yes, which ones?
5. How long did it take you to fill out the survey? _____minutes
6. What suggestions do you have that could improve the survey?

Please email the Questionnaire and Feedback Form back to me at mrobinson@rcsnc.org. If you have questions or suggestions, please do not hesitate to contact me by email or by phone at (828) 429-4562. Again, your assistance with this pilot test is greatly appreciated.

Sincerely,

Martha Harrill Robinson
Doctoral Candidate at WCU

APPENDIX G

Letter to Colleagues Reviewing Survey

382 West Main St.
Forest City, NC 28018
September 18, 2010

Dear Colleagues:

Thank you for agreeing to review the pilot test for my survey concerning teachers' perceptions of professional development in the middle schools of western North Carolina. The purpose of this pilot test is to eliminate any "flaws" in the survey instrument thus strengthening the validity of the study. Below are a few suggestions that may help you as you examine and complete the instrument.

Complete the survey as best you can. After you have taken the survey, please write any concerns, questions, or corrections on the Feedback Form. Also make a note of any questions that are poorly written, unclear, wordy, or contain technical language. Feel free to add any survey questions that you feel are pertinent to professional development.

Please write the time, in minutes, that it took you to complete the survey. This will help me with redesigning the survey. After you are finished, please email the questionnaire and Feedback Form back to me at mrobinson@rcsnc.org.

Your assistance with this pilot test is greatly appreciated. If you have any questions, please contact me at (828) 429-3071.

Sincerely,

Martha Harrill Robinson
Doctoral Candidate
Western Carolina University

APPENDIX H

Feedback Form for Colleagues

Dear Colleagues:

Thank you for taking the time to review the survey instrument which I will use to collect data on the perceptions of western North Carolina middle school teachers on the quality of, and resources provided for, professional development. The survey contains 18 questions. First, complete the survey. Then, answer the following questions regarding the survey.

1. Are any of the questions poorly written or unclear? Yes No
   If yes, which ones?

2. Are any of the questions too wordy? Yes No
   If yes, which ones?

3. Do any of the questions contain technical/confusing language?
   Yes No
   If yes, which ones?

4. Do any of the questions need clarification? Yes No
   If yes, which ones?

5. How long did it take you to fill out the survey? _____minutes

6. What suggestions do you have that could improve the survey?

Please email the Questionnaire and Feedback Form back to me at mrobinson@rcsnc.org. If you have questions or suggestions, please do not hesitate to contact me by email or by phone at (828) 429-3071. Again, your assistance with this pilot test is greatly appreciated.

Sincerely,

Martha Harrill Robinson
Doctoral Candidate at WCU

APPENDIX I

Superintendent Letter

_____Superintendent
_____County Schools
Address
Date

Dear_____,

I am a doctoral student at Western Carolina University, and am interested in surveying middle school teachers in _____County. I want to recruit the teachers electronically through the school web mail to ask them to participate in the study. I am trying to isolate some variables related to teachers' perceptions of the professional development in which they participate. The survey instrument does not ask any questions on student performance or district policy. Instead, it asks questions pertaining to professional development, perceived opportunities available to teachers, delivery mode/time frames of professional development, the impact professional development has on the teacher's classroom and student achievement. A sample of the survey is enclosed for your review.

Participation in the study is strictly voluntary, and participant consent can be withdrawn at any time during the survey period. Perspective respondents will be assured that when reporting the data, the identity of the districts and personnel involved in the study will be protected. A summary of the statistical findings will be included in my dissertation. I have attached a permission form for your acceptance or decline of my request to survey the middle school teachers in the _____school system.

A self-addressed, stamped envelope is enclosed. Please reply by _____. If you have any questions, please do not hesitate to contact me at (828) 429-4562, by fax at (828) 245-1451, or you can email me at mrobinson@rcsnc.org You may also contact my faculty advisor, Dr. Sandra Tonnsen, at (828) 227-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina University IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323.

Thank you for your time and consideration of my request.

Sincerely,

Martha Harrill Robinson
Director of Human Resources
Rutherford County Schools

APPENDIX J

Informed Consent Form - Superintendent

I, _____ give permission,

_____ do not give permission

for the 6-8 middle school teachers from _____County School System to participate in Martha Harrill Robinson's survey.

If you would like to receive a copy of my summary findings from the study, please check the preferred method for use in sending the results:

____Email
(Email
address)_____

____Regular Mail
(Mailing
Address)_____

Signature:

_____(Superintendent)

_____(Date)

APPENDIX K

Pre-Notice Letter to Teachers

Dear Teacher:

This letter is an invitation for you to participate in a study about teachers' perceptions of professional development. Your superintendent has given approval for you to participate in the survey. Within the next few days, you will receive an email containing a web address to use in filling out the survey. The survey contains 19questions and is part of a research study being conducted for a doctoral dissertation. The study concerns professional development in middle schools and the impact it has on teacher learning and student achievement. Participation in the study is strictly voluntary, and participant consent can be withdrawn at any time during the survey period. When reporting the data, the identity of the districts and personnel involved in the study will be protected.

I am emailing you in advance because as a middle school teacher for 13 years, I understand the busy workday you have. Thank you for your time and consideration. It is only with the help of middle school teachers like you that my research can be successful. This study is important in order to isolate variables related to professional development in the middle school.

If you have any questions, feel free to contact me at (828) 429-3071 or by email at mrobinson@rcsnc.org. You may also contact my faculty advisor, Dr. Sandra Tonnsen at (828) 227-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina University IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323. By completing this survey, you have given consent to participate in the study.

Thank you in advance for your help.

Sincerely,

Martha Harrill Robinson
Doctoral Student at WCU

APPENDIX L

Survey Invitation for Teachers

Dear Teacher:

I am a doctoral candidate at Western Carolina University and a former middle school teacher. I need your help as I examine teachers' perceptions of professional development opportunities.

Please take a few minutes to complete the online survey designed to collect information regarding the professional development opportunities in which you have participated. A pilot test of the instrument showed that it should take about 15 minutes to complete. The information will be used to examine the professional development currently offered to the middle school teachers in Western North Carolina.

Your responses are strictly confidential and they will not be disclosed individually to anyone in your school or in any publication. A pseudonym will be assigned and your name/number will not be connected to any of your answers. Upon completion of the study, the email list will be shredded and all completed surveys will be kept locked at all times. The surveys will be destroyed after three years. Results of this study will be made available in summary form to responders via the Internet.

Participation in this study is voluntary and you may withdraw at any time during the study. If you would like additional information regarding this survey or if you have any questions about this study, please contact me at (828) 429-3071or by email at mrobinson@rcsnc.org. You may also contact my faculty advisor, Dr. Sandra Tonnsen, at (828) 227-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323. By completing this survey, you have given consent to participate in the survey. You may access the survey at http://www.zoomerang.com/Survey/WEB22B8ST6Q7AR

The researcher, Martha Harrill Robinson, agrees not to disclose specific information about individual teachers, schools, or students. All information disclosed will take the form of statistical data. Thank you for your time and assistance.

Sincerely,

Martha Harrill Robinson
Doctoral Student at WCU

APPENDIX M

Email Thank You Reminder

Approximately a week ago, I sent an email with a web address for a survey on your perceptions of professional development in the western North Carolina middle schools. If you have already returned the survey, please accept my sincere thanks. If not, please consider completing my survey today.

It is only by asking teachers like you to share your professional development experiences that I can understand what constitutes quality professional development in the eyes of western North Carolina middle school teachers. These results will be helpful to both teachers and students. As I mentioned before, your answers are confidential and will be combined with others before results are reported. Should the previous email with the web address have been deleted from your email account, I am providing the web address for you _____.

If you have any questions or concerns, please do not hesitate to contact me (Martha Harrill Robinson) at (828) 429-3071, or by email at mrobinson@rcsnc.org. You may also contact my faculty advisor, Dr. Sandra Tonnsen, at (828) 2327-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina University IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323. By completing and returning this survey, you have given consent to participate in the survey.

Thank you for your assistance.

Martha Harrill Robinson
Doctoral Student at WCU

APPENDIX N

Final Email Survey Reminder

Dear Middle School Teacher,

Approximately a week ago, I sent a reminder email with a web address for a survey on your perceptions of professional development in the western North Carolina middle schools. If you have already returned the survey, please accept my sincere thanks. If not, please consider completing the survey before it closes on Monday, October 25, 2010.

Your perceptions are valuable to both teachers and students. As I mentioned before, your answers are confidential and will be combined with others before results are reported. Should the previous email with the web address have been deleted from your email account, I am providing the web address for you http://www.zoomerang.com/Survey/WEB22B8ST6Q7AR

If you have any questions or concerns, please do not hesitate to contact me (Martha Harrill Robinson) at (828) 429-3071, or by email at mrobinson@rcsnc.org. You may also contact my faculty advisor, Dr. Sandra Tonnsen, at (828) 2327-3324 or by email at tonnsen@email.wcu.edu. If you have any concerns about your treatment as a participant in this study, you may contact the Western Carolina University IRB Chairperson, Dr. Meagan Karvonen, at (828) 227-3323. By completing and returning this survey, you have given consent to participate in the survey.

Several respondents have asked me to send feedback on the survey which I will be happy to share when the analysis is complete. Thank you for your assistance.

Sincerely,

Martha Harrill Robinson
Doctoral Student at WCU

APPENDIX O

Invitation to Participate in Focus Groups

Dear Principal,

Thank you for allowing your school's 6-8 middle school teachers to participate in the electronic survey, Middle School Professional Development 2009-2010, earlier this fall. Preliminary analysis of the data has shown that your district's teachers perceive the professional development in which they participated during the 2009-2010 year to be closely aligned to the standards set forth by Learning Forward, formerly the National Staff Development Council, upon which the survey's conceptual framework is based.

To add further credence to my study, the dissertation committee has requested that I establish a focus group to gain further insight as to the teachers' perceptions of their professional development experiences. This group will be comprised of a small, representative sample of middle school teachers, two from each middle school in Buncombe County. Since the study only asked the teacher to disclose their district, I do not know which teachers responded to the survey. I am requesting that you choose two teachers who are willing to participate and whom you feel would be candid with their responses regarding their professional development experiences.

I have made arrangements for a meeting at the Buncombe County Schools Central Office in Conference Room B for December 13, 2010, at 3:30 PM. We will meet for approximately one hour to discuss the strengths of the professional development opportunities in which they've participated in order to gain further insight into their perceptions of valuable professional development. An audio tape will be used to record the discussion for transcription. The audio tape will be destroyed in one year and participants may be quoted anonymously. An email response to affirm your willingness and to give me names of teachers willing to participate in the focus groups is appreciated.

A list of questions we will discuss is attached for your perusal. Please share the questions with the teachers you select to help them formulate their thoughts. If you have any questions, I can be reached by email at mrobinson@rcsnc.org or by phone at (828) 429-3071.

Sincerely,

Martha Harrill Robinson
Doctoral Student at WCU
Director of Human Resources
Rutherford County Schools

APPENDIX P

Invitation for Teachers to Participate in Focus Groups

Dear Middle School Teacher,

You may have participated in the electronic survey, Middle School Professional Development 2009-2010, earlier this fall. Preliminary analysis of the data has shown that your district's teachers perceive the professional development in which they participated during the 2009-2010 year to be closely aligned to the standards set forth by Learning Forward, formerly the National Staff Development Council, upon which the survey's conceptual framework is based.

To add further credence to my study, your superintendent has given me permission to establish a focus group to discuss the professional development offerings in which you participated last year. This group will be comprised of at least one teacher from each of your district's middle schools. Your principal has recommended you as a participant in the focus group representing your school.

Your principal has identified you as a person who may be willing to meet with me. We will meet at your central office conference room on December 13, 2010, for approximately one hour. The discussion will center on the strengths of the professional development opportunities in which you have participated. An audio tape will be used to record the discussion for transcription. The audio tape will be destroyed in one year and participants may be quoted anonymously. Participation in the study is strictly voluntary. When reporting the data, the identity of personnel involved in the study will be protected.

An informed consent form required by the university is attached for your perusal. I will have copies available for your signature at our meeting. Please respond to this email by November 3, 2010, to affirm your willingness to participate in the focus group.

I look forward to meeting you and gaining further understanding on your perceptions of your professional development experiences. Feel free to call me at (828) 429-3071 or email me at mrobinson@rcsnc.org if you have any questions.

Sincerely,

Martha Harrill Robinson
Doctoral Student at WCU
Director of Human Resources
Rutherford County Schools

APPENDIX Q

Informed Consent Form - Focus Group Participants

I, _____, agree to participate in an audio taped focus group for Martha Harrill Robinson's research on middle school professional development. Participation is voluntary and the identity of all participants will be protected.

I understand the audio tape will only be reviewed by the researcher, Martha Harrill Robinson, and the audio tape will be destroyed by December 13, 2011. I agree to be quoted anonymously.

I would _____would not _____like to receive a copy of the focus group transcript.

If you would like to receive a copy of my summary findings from the study, please check the preferred method for use in sending the results:

____Email
(Email
address)_____

____Regular Mail
(Mailing
Address)_____

Signature of
Teacher:_____

Name of Middle School:_____

Date:_____

APPENDIX R

Instructional Programs
Glossary of Terms

Algebraic Thinking– a math program designed for middle grades students who are growing in their ability to reason abstractly. The hands-on training assists students in becoming capable of generalization, abstraction, and argument in mathematics. http://msteacher.org/epubs/math/algebraic/introduction.aspx

Class Scape – ClassScape is an online classroom assessment system that facilitates learning by focusing on curricular objectives. ClassScape enables teachers to monitor student performance on North Carolina Standard Course of Study academic indicators. The system also allows North Carolina teachers to build customized tests or use tests prepared by ClassScape. ClassScape assists teachers in self-assessment of instructional strategies and monitoring student progress on an ongoing basis. Teachers can select specific objectives to assess throughout the school year and access real-time instructional feedback reports.
http://www.classscape.org/ClassScape3/

Connected Mathematics Project 2© training*(CMP2)* - With funding from the National Science Foundation (NSF) in 1991-1996, and in 2000-2006, the Connected Mathematics Project (CMP) developed a complete mathematics curriculum for middle school teachers and students. CMP helps students and teachers develop understanding of important mathematical concepts, skills, procedures, and ways of thinking and reasoning, in number, geometry, measurement, algebra, probability and statistics. CMP is based on research, and was field-tested in diverse sites across the country with approximately 45,000 students and 390 teachers. Each unit, in both 1991-1996 and 2000-2006 development periods, went through at least 3 cycles of field testing.
http://connectedmath.msu.edu/

Empowering Writers® - is an educational coaching and publishing firm specializing in the instruction of writing which supports the teaching of state standards.
https://www.empoweringwriters.com/staticpage/node/1/about-us

LEARNING-FOCUSED© - developed by Dr. Max Thompson, provides comprehensive school reform strategies and solutions for K-12 schools based on exemplary practices and research-based strategies. These practices and strategies focus on five areas: Planning, Curriculum, Instruction, Assessment, and School Organization.
http://www.learningfocused.com/index.php/about

Moodle - Moodle is a Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a Free web application that educators can use to create effective online learning sites.
http://moodle.org/

North Carolina Teacher Academy- The North Carolina Teacher Academy is a professional development program for teachers established and funded by the North Carolina General Assembly. The mission of the Academy is to support continuous learning to the growth of a career teacher by providing quality professional development in the areas of school leadership, instructional methodology, core content, and use of modern technology in order to enrich instruction and enhance student achievement. http://www.teacheracademy.org/cms/index.php

Positive Behavior Intervention and Supports (PBIS) - is a systems change method to promote positive behaviors in students. Strategies are developed that manage student behavior in classroom settings and outside of classroom settings. An all-encompassing system of behavior management, all parties involved are on board to prevent behavior management from being produced in a piecemeal way.

Promethean Interactive Whiteboard System - the ActivClassroom is a 360-degree, technology enabled learning environment comprising interactive white boards, learner response systems, software, training and professional development, resources and instructor communities all proven to improve educational results. http://www.prometheanworld.com/server.php?show=nav.21201

Quality Teaching and Learning™ *(QTL)* - The QTL Process is a collection of related professional development programs for teachers and instructional leaders. Each of these programs can be implemented on its own or as part of an ongoing, sustainable professional development effort throughout a school. They can be led by QTL instructional specialists or, through partnership, by a district's own experts. http://www.qtlcenters.org/programs/

Reading Foundations - course designed to provide an understanding of the instructional principles derived from scientific-based research and a solid foundation of knowledge and skills to begin using research-proven teaching strategies with students with disabilities who have persistent reading problems. Goals are:
-To provide teachers with a solid foundation of knowledge and skills needed to deliver effective reading instruction to all students
-To increase understanding of reading difficulties and of how to help struggling readers
-To review recent research on prevention and remediation of reading problems
-To allow teachers to make judgments about instructional practices and materials based on sound knowledge
http://www.ncsip.org/instruction/reading.html

Rubicon-Atlas Training – training specialized in curriculum development and the sharing of best practices through curriculum mapping. Rubicon's training philosophy centers around these seven principles: 1) Make Atlas as naturally intuitive as possible; 2) Develop an overall training plan; 3) Provide training using the school's actual data; 4) Utilize training agendas; 5) Incorporate checklists; 6) Engage the faculty in a manner that seeds commitment; and 7) Make the training hands-on.

http://www.rubicon.com/EducationTraining.php

Sheltered Instruction Observation Protocol Model (SIOP)–The Sheltered Instruction Observation Protocol (SIOP) Model's purpose is to facilitate high quality instruction for English language learners in content area teaching. It is used in hundreds of schools across the U.S. as well as in several other countries.
http://esl-programs-lessons.suite101.com/article.cfm/a_valuable_resource_for_k12_esl_math_teachers#ixzz0hyawLdy2

Takadimi method of music sight reading – a method of teaching rhythm featuring two related sets of syllables which at the subdivision level yields the pattern of "Ta-ka-di-mi."
http://www.takadimi.net/documents/TakadimiArticle.pdf

Thinking Maps - Thinking Maps, Inc. is an educational consulting and publishing company specializing in providing professional staff development for K-12 schools across the country. The primary focus is the implementation, on a school-wide and district-wide basis, of Thinking Maps®, a common visual language for learning within and across disciplines.
http://www.thinkingmaps.com/index.php

Wilson Language Training–a reading program providing educators with professional development and research-based reading and spelling curricula for all ages. It contains ..multisensory, structured curricula—the WILSON Reading System®**,** WILSON Fundations®**,** WILSON Just Words®,and WILSON Fluency.
http://www.wilsonlanguage.com/

APPENDIX S

Relationship Between Gender and Adherence to LF Standards

Survey Question	Value	df	Asymp.Sig. (2-sided)
A	3.644	4	.456
B	6.409	4	.171
C	3.014	4	.555
D	1.180	4	.881
E	1.608	4	.807
F	0.782	4	.941
G	0.387	4	.984
H	1.057	4	.901
I	5.579	4	.233
J	3.184	4	.528
K	3.880	4	.422
L	1.501	4	.826
M	2.058	4	.725
N	2.522	4	.641
O	2.391	4	.664
P	0.829	4	.935

_____The results for the chi-square tests of independence are below. Note that there are no statistically significant differences between males and females in their responses any of the 16 items under Question 13.

APPENDIX T

Relationship Between Teachers' Years of Experience and Adherence to LF Standards

Survey Question	Value	df	Asymp.Sig. (2-sided)
A	12.098	28	.986
B	28.018	28	.459
C	26.709	28	.534
D	24.941	28	.631
E	19.218	28	.891
F	26.579	28	.541
G	20.728	28	.837
H	9.050	28	1.000
I	22.741	28	.746
J	17.627	28	.935
K	23.134	28	.726
L	24.791	28	.639
M	35.192	28	.164
N	16.780	28	.953
O	37.117	28	.116
P	27.978	28	.466

These are the results of the Chi-square tests of independence based on the number of years of experience that the respondents have. The amount of cases excluded from analysis varies from item to item, ranging from 5 to 11. There were no statistically significant differences based upon years of experience when divided into intervals of five years.

APPENDIX U

Relationship Between Subjects Taught and Adherence to LF Standards

Survey Question	Value	df	Asymp.Sig. (2-sided)
A	23.719	28	.696
B	38.978	28	.081
C	33.921	28	.203
D	26.436	28	.549
E	23.868	28	.688
F	25.693	28	.590
G	25.290	28	.612
H	26.013	28	.572
I	36.720	28	.125
J	33.369	28	.222
K	20.961	28	.827
L	20.911	28	.829
M	18.401	28	.916
N	22.196	28	.772
O	50.289	28	.006
P	19.78	28	.872

These are the results for the chi-square tests of independence based on the assigned area of teaching. There was only one statistically significant result, for item Q13O ("PD provided me with knowledge & skills to involve families and other stakeholders"). This means that there are statistically significant differences of opinion on this item based on what area the respondents teach in. All the rest of the results were not statistically significant.

APPENDIX V

Relationship Between District Size and Adherence to LF Standards

Survey Question	Value	df	Asymp.Sig. (2-sided)
A	9.310	8	.317
B	4.749	8	.784
C	8.752	8	.364
D	7.720	8	.461
E	5.526	8	.700
F	6.471	8	.595
G	4.773	8	.782
H	4.421	8	.817
I	9.345	8	.314
J	11.685	8	.166
K	15.440	8	.051
L	5.557	8	.697
M	5.581	8	.694
N	10.785	8	.214
O	7.586	8	.475
P	4.156	8	.843

These are the results of the chi-square tests of independence based on the size of the district. The amount of missing data ranged from 16 to 22 respondents, depending on the item. There were no statistically significant results on any of the chi-square tests. We almost saw a significant difference on Q13K, but it fell just short of the mark.

APPENDIX W

Z-tests of Proportions

In the following tables, all results marked with a double asterisk (**) are statistically significant at $\alpha = 0.01$; a value of $z = \pm 2.232$ is required for significance at this level. All tests are performed as two-tailed tests; no presumption is made in the null hypotheses of these tests concerning directionality.

Language Arts:

	Math	Science	Social Studies	1+ Core Courses	1 Core & 1 Non-core	CTE	Non-core Only
Strongly Agree	-0.343	0.431	0.499	-0.088	-0.428	0.255	0.502
Agree	0.908	-0.103	1.345	-0.047	0.095	0.717	0.509
Don't Know	2.305	0.973	3.257**	-0.650	1.659	0.632	0.447
Disagree	0.061	0.603	1.345	0.611	0.095	1.191	1.291
Strongly Disagree	0.824	0.602	0.091	0.417	0.428	-0.168	0.114

Mathematics:

	Science	Social Studies	1+ Core Courses	1 Core & 1 Non-core	CTE	Non-core Only
Strongly Agree	0.611	0.485	0.117	-0.469	0.418	0.496
Agree	0.539	0.461	0.637	0.006	1.715	1.852
Don't Know	0.704	1.113	2.149	-0.334	0.724	0.770
Disagree	0.403	1.184	0.977	-0.092	1.036	1.096
Strongly Disagree	1.844	-0.240	-0.447	-0.668	0.914	0.377

Science:

	Social Studies	1+ Core Courses	1 Core & 1 Non-core	CTE	Non-core Only
Strongly Agree	1.199	-0.163	-0.050	**(a)**	1.211
Agree	1.025	-0.283	0.954	0.765	0.576
Don't Know	1.708	0.866	1.165	-0.328	0.349
Disagree	0.362	1.347	2.054	0.303	0.060
Strongly Disagree	0.953	1.337	-0.288	0.085	1.218

Social Studies:

	1+ Core Courses	1 Core & 1 Non-core	CTE	Non-core Only
Strongly Agree	0.866	-0.050	0.970	-0.155
Agree	1.125	0.499	2.001	2.076*
Don't Know	3.080**	0.650	1.639	3.086**
Disagree	2.054	0.499	-0.401	1.633
Strongly Disagree	-0.498	-0.288	0.247	-0.337

1+ Core Courses:

	1 Core & 1 Non-core	CTE	Non-core Only
Strongly Agree	-0.137	-0.305	0.903
Agree	-0.078	0.871	0.713
Don't Know	1.538	0.541	0.343
Disagree	0.730	1.843	2.197
Strongly Disagree	-0.461	0.541	-0.014

1 Core & 1 Non-core Course:

	CTE	Non-core Only
Strongly Agree	0.147	-0.124
Agree	0.821	0.652
Don't Know	0.356	1.135
Disagree	0.441	0.258
Strongly Disagree	0.530	0.134

CTE:

	Non-core Only
Strongly Agree	0.971
Agree	0.217
Don't Know	0.023
Disagree	0.131
Strongly Disagree	0.291

NOTES:

Both observed frequencies are equal to 0; the value for the *z*-test for proportions cannot be calculated.