

AN EXPLANATORY MIXED-METHODS STUDY OF INSTRUCTIONAL
COACHING PRACTICES AND THEIR RELATIONSHIP TO STUDENT
ACHIEVEMENT

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ABSTRACT

AN EXPLANATORY MIXED-METHODS STUDY OF INSTRUCTIONAL COACHING PRACTICES AND THEIR RELATIONSHIP TO STUDENT ACHIEVEMENT

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The purposes of this study were to examine the nature of high school instructional coaching implementation, explore a possible relationship between instructional coaching and student achievement, and identify aspects of a successful instructional coaching program. This study was unique because of the exploration of instructional coaching practices in relation to student achievement. Qualitative research on coaching best practices and even instructional improvement are available, but few studies have delved into the primary goal of high school instructional coaching: improving student learning and achievement.

This study used a mixed-methods design. The sampling frame was the 115 North Carolina public school districts. Of these 115 school districts, 39 employed high school instructional coaches at some point between 2005 and 2010. Data for the study included survey results from the 115 NC school districts, NC School Report Card Data, and interviews with the high school instructional coach and curriculum director for the selected district.

Implementation of high school instructional coaching varied across the state. Employment status included full-time instructional coaches, part-time administrators,

part-time teachers, and part-time employment only. Coaches differed in their work with specific content areas and in the school and district level initiatives they supported. Coaches differed in the professional development they were provided and in the number of times they were expected to meet with principals in the high schools they served. Some of the coaches worked at one high school, while others were supporting as many as eight high schools in their district. The activities coaches directed differed markedly as well, but most coaches were expected to support teachers in lesson planning and delivery.

No relationship was found between student achievement and the number of schools a coach served, coaches' support of Professional Learning Communities, coach professional development, relationship confidentiality, or typical coaching activities. However, the frequency of principal and coach meetings was related to student achievement. The district demonstrating the most significant growth in student achievement noted almost daily interaction between the coach and principal. This particular coach both performed traditional instructional coaching duties and taught students a minimum of 40 minutes every day.

Districts are encouraged to pursue some of the nontraditional coaching activities the interviewed coach noted, particularly her continued work with students as a tutor and classroom teacher. In addition, policy makers may want to consider priority hiring of coaches who have had successful teaching experiences at the school in which they will coach. Further research should be conducted in the state to determine if a relationship exists between instructional coaching in grades K-8 and student achievement. In addition, qualitative research on specific coaching practices should be conducted comparing the

high school coaching districts demonstrating growth over time in student achievement and those who saw no gains.

CHAPTER 1: INTRODUCTION

“Creating a profession of teaching in which teachers have the opportunity for continual learning is the likeliest way to inspire greater achievement for children, especially those for whom education is the only pathway to survival and success” (Darling-Hammond, 1998, p. 11).

Our world is rapidly and constantly changing, and success for students today is defined and obtained in a much different manner than in previous years. Many jobs currently available did not exist even five years ago, and preparing young people for an uncertain and ever altering future requires a much different skill set for teachers than in previous years (“Partnership,” n.d.). Where once high school graduation was not mandatory for future financial success, it now is the minimum assurance for employment (“Partnership,” n.d.). Where once society was satisfied to have lecture as the sole means of instructional delivery and students choose whether to learn, our schools can no longer survive with that practice. Scientists know more every day about how the brain works and what factors must exist in order for learning to happen (Jensen, 2008). Technology is changing our world every day, and our great thinkers have discovered, through much trial and error, that learning is based on far more than intelligence (Pink, 2005). Because of what the educational community now knows about learning, brain development, and change, teachers must alter how they teach in order to provide what our children need for their current and future success.

Educators cannot make these alterations in teaching methodology and instructional delivery without support. Many schools across the nation have begun to

offer this support through the use of instructional coaches. An instructional coach offers school level professional development on an ongoing basis (Knight, 2009). Instructional coaches support and encourage teachers, improve teacher strategies, promote teacher reflection, and focus on desired outcomes (Koh & Neuman, 2006). While coaches have been utilized in the business world for years to improve employee performance (Connellan, 2003), their introduction into schools in nonclassroom teaching positions has been recent. Conversely, peer coaching, in which teachers support other teachers within a school, has been formally in existence for over 30 years (Joyce and Showers, 1982). While peer coaching can be beneficial in improving instruction (Showers and Joyce, 1996), rarely do teachers have the time and energy to fully support a fellow full-time teacher. It is the full time, ongoing, job embedded nature of instructional coaching that offers the potential to dramatically improve classroom instruction and student learning (Knight, 2009).

Currently, at least four different coaching models are utilized across the United States, but due to recent implementation and difficulty in isolating student achievement as a variable, little research is available on educational coaching and its relationship to student achievement. While states such as Pennsylvania have incorporated instructional coaches as a model for the entire state to follow (Brown, et al., 2007), other states have some school systems that utilize instructional or other types of coaches and some that do not (Reddell, 2004). Some districts that employ instructional coaches follow a reform model (Regge & Soine, 2008). A reform model in education is a systematic change in practice driven by an overarching plan. In some school systems, coaches serve only one

school, while in other systems coaches work at three or more schools. Some coaches receive extensive professional development and some receive almost none (Poglinco, et al., 2003). This variety in implementation, use, and theory make for a potentially enlightening study in terms of the pervasiveness of instructional coaching in North Carolina schools.

Since the early 1980s, research has shown a lack of effect on student learning when teachers are provided traditional staff development training, a one shot, “sit and get” delivery. The result of this traditional professional development is only a 10% average transferability of professional development information to classroom instruction (Joyce & Showers, 1980). Almost thirty years ago, Joyce and Showers found that peer coaching and modeling increased the likelihood of actual incorporation of a skill learned in professional development into classroom teaching by over 80%. Joyce and Showers’ early coaching data have directed the avenues of coaching in the years since, ranging from peer coaching, to cognitive coaching, to literacy coaching to instructional coaching. All of these coaching types have been used to some extent across the United States, but due to a lack of consistent implementation and widespread variation of each type of coaching, little quantitative data exist in terms of the relationship between coaching and actual change in teacher practice or coaching and student learning.

Reform models, in which districts or even whole states adopt a program designed to increase student achievement, abound across the United States. While these models offer instructional material for improving teacher quality, it is the job embedded, consistent availability of a master teacher that ensures the sustainability of the many

initiatives (Poglinco, et al., 2003). Without ongoing professional development, few teachers will actually change their practice, and schools will continue to see the same results they always have (Poglinco & Bach, 2004). Instructional coaching allows for long-term access to a mentor who can guide teachers toward improvement.

Building on the knowledge gleaned from business and industry, and athletic coaching as well, instructional coaches provide a multitude of services to classroom teachers, allowing these teachers to grow and develop their teaching craft (Kowal & Steiner, 2007). The link between strong instruction and student achievement is clear and well documented. Instructional coaches provide the necessary bridge between the end goal of student learning and the classroom teacher. Most notably, “as [No Child Left Behind] prompts states to identify more schools as in need of improvement, districts are likely to intensify their interest in instructional coaching as a means to improving low performing schools by examining data, developing teachers’ skills and improving classroom instruction” (Taylor, 2008, p. 11).

Significance of the Topic

United States teachers reported in teacher working conditions surveys that they received less professional development and felt less prepared in multiple areas from 1998 to 2000, including in particular the area of student assessment (National Center for Educational Statistics, 2001). In the 2001 No Child Left Behind (NCLB) Act, over \$3 billion was dedicated to the Teacher and Principal Quality Training and Recruitment Fund (NCLB Act, 2001). The money was directed to both recruit quality staff for schools across the United States and to improve the quality of existing educators. While money,

energy, and time have been funneled into improving education across the country, student achievement, particularly in urban and isolated rural areas, remains stagnant, or is even declining (Johnson & Strange, 2009). In addition, high school graduation rates remain at around 60% nationally, and at about 70% in North Carolina (National Center for Educational Statistics, 2008). Graduating every child ready for 21st century life will require a vastly different approach from that previously practiced by most high school teachers.

In addition, the National Association of Educational Progress (NAEP) results from 2008 indicate that 17 year olds showed no significant increase in either math or reading scores from the early 1970s (National Center for Education Statistics, 2009). When considering multiple achievement indicators together, “student achievement has stagnated or fallen in most subjects since 1970, with the largest and most thoroughly established decline occurring in basic literacy” (Coulson, 1999, p. 177). Considering the growth in pedagogical knowledge and educational funding in the last 40 years, these findings are all the more astounding and disturbing. While many students who eventually drop out of school begin losing interest or falling behind in the early grades, it is often in high school that these gaps in learning and loss of interest become apparent (Brown, et al., 2007).

Statement of the Problem

While four predominant models of coaching are used in schools, the evidence linking any of these approaches to student achievement data is virtually nonexistent. One issue in determining a link between coaching and student achievement is that coaching

can look very different from district to district, or even school to school. Some districts employ an instructional coach in each school, others have one for the entire district, some have one per grade span, and some districts have coaches based on particular content areas or on literacy. In North Carolina, for example, each district may choose how to spend teacher quality money, and beyond the suggestion of coaching as a possible option to improve student learning, no communication exists on a statewide level to determine who is utilizing instructional coaching or to what degree. NAEP scores indicate high school students are continuing to perform poorly in comparison to 30 and 40 years ago, particularly in literacy. In addition, textile jobs specifically and employment available in general to high school dropouts are rapidly decreasing across the United States.

Instructional coaching is a relatively new concept in the educational arena. Beginning in the early to mid 1980s, preliminary results indicate the strategies coaches employ are successful in improving teachers' instructional delivery (Joyce and Showers, 1980). Much of the data at present, though, are qualitative and self-reported from teachers and coaches, with little evidence provided indicating coaching is improving student achievement (Knight, 2004). In this study, in order to increase the research on results of instructional coaching, quantitative analysis on the relationship between instructional coaching and student achievement was conducted. In addition, I also conducted explanatory qualitative analysis via interviews of an instructional coach and curriculum director in the district found to have significant growth in the quantitative portion of this study. While determining if a relationship exists between instructional coaching practices and student achievement was both important and needed, explaining to which coaching

practices districts attribute student achievement growth in terms of increased proficiency rates was valuable as well.

This study is unique due to several factors. First, little data exist regarding the nature and scope of instructional coaching in North Carolina high schools, or on the relationship between instructional coaching and student achievement in general. In addition, by using a mixed-methods approach, quantitative data regarding the connection between coaching and student achievement across North Carolina were statistically analyzed, and best practices of an outlying, successful district were identified.

This study was worthwhile because educational agencies are seeking ways to improve or eliminate nonperforming programs and get the most achievement gains for the money. Evaluating coaching programs across the state provides members of the educational community who have instructional coaches or who are thinking about initiating a coaching program with information regarding the relationship between coaching and student achievement.

Purpose of this Study

The purpose of this study was threefold: first, to determine the extent to which instructional coaching is being utilized in North Carolina high schools; second, to evaluate the relationship between instructional coaching implementation and student achievement; and third, to detail a picture of a coaching program in a district with exceptional student achievement gains determined through increased proficiency rates on EOC composite tests. While multiple coaching models exist in United States schools, all have the goal of improving instruction and thus student learning (Poglinco & Bach,

2004). Many connections have been made between high quality staff development and teacher quality (Desimone, Porter, Garet, Yoon, & Birman, 2002; Guskey, 2002), as well as teacher quality and student achievement (Desimone, et al., 2002; Weglinsky, 2002), but little research exists on the relationship between instructional coaching and student achievement.

The theoretical framework for this study is based on Knight's theoretical framework guiding an evaluation of the Kansas City Coaching Project (2007) and Guskey's five levels of professional development evaluation (2002). The study concentrated on exploring the extent to which coaches were being utilized in North Carolina high schools, and then focused on Guskey's fifth level of professional development evaluation: the effect on student learning. High school instructional coaching represented the evaluated professional development.

Research Questions

The following questions were addressed in this study:

1. In what ways is instructional coaching implemented in North Carolina high schools?
2. What is the relationship between high school instructional coaching implementation and student achievement?
3. What are the characteristics of high school instructional coaching programs in districts with high student achievement growth?

This mixed-methods study examined and evaluated the impact of high school instructional coaching on student achievement in North Carolina. A combination of

survey, archival, and interview data were collected in three phases. Multiple public school districts across North Carolina are utilizing high school instructional coaching to improve student learning. While varied models are in place across the districts, and in some cases within districts, little data exist on how instructional coaching as professional development relates to student achievement. While data on the relationship between teacher quality and student achievement exist and the relationship between quality staff development and teacher quality has been found significant, the connection has not previously been established between coaching and student achievement.

Methodology

The first portion of this mixed-methods study was quantitative, involving analysis of survey results from North Carolina school districts regarding their implementation of instructional coaching in high schools. The survey responses addressed research question one.

Question two examined the relationship between instructional coaching and student achievement, comparing student achievement trends in districts that employ high school instructional coaches to state averages in End of Course (EOC) achievement tests. Student achievement was defined relative to state averages on these achievement tests as reported on a composite score for each year. Trend data using standardized scores were analyzed on a district specific basis by comparing post to pre-coaching achievement data. These results were evaluated to determine if a relationship existed between coaching implementation and student achievement, and addressed research question two.

After evaluating the quantitative portion of the study, I then used a qualitative explanatory design to explore the coaching program of the district with the most growth in student achievement, since that district was identified in question two analysis (Question three). This extreme case from the student achievement data analysis was contacted for permission to interview an instructional coach and curriculum coordinator. The interviews were designed to explore the characteristics of this successful (in terms of increased proficiency rate on EOC composite) program in greater depth than was identified from the survey, and addressed research question three.

Applications

Federal Title II dollars, earmarked to increase teacher quality, are available to each district in North Carolina. Individual districts determine how to use these funds, and many of the larger districts are employing instructional coaches at least in part with this federal money. Currently, few small districts in North Carolina employ instructional coaches. Due to limited funds and resources, these small districts often must wait until clear and compelling evidence exists on a new trend's effectiveness before choosing to utilize the trend. Determining if instructional coaching is related to student achievement, and which practices and methodologies districts believe make the most difference, could encourage districts to utilize instructional coaches with their federal Title II teacher quality dollars.

Delimitations

Several delimitations provided parameters for this study. The sample came from North Carolina and included only districts that responded to the survey indicating they

employed high school instructional coaches. Student achievement data were identified after survey data collection, and involved the proficiency rate for achievement tests administered to North Carolina high school students. Due to the design, a relationship was explored between coaching and student achievement, but causation could not be determined in the scope of this study. It is possible that other factors such as administrative changes or specific professional development could also affect student achievement. The interviews included only one instructional coach and one curriculum director in a high achieving system in terms of student achievement from the sample. Since this study was designed to focus on district level coaching implementation, no teacher perspectives or evaluations of the quality of district coaching were included in this study. Districts with less compelling results, districts that employ coaches but not high school coaches, and districts that do not employ instructional coaches were not included in the explanatory portion of the study.

Because a statewide database on instructional coaches does not exist, I could not ensure with absolute fidelity that all districts in North Carolina employing instructional coaches were included in the study. Also, this study focused on program delivery in terms of student achievement outcomes, and not on teacher response, efficacy, or change (although change is an inherent understanding in producing student achievement growth). Due to the mixed-methods design of this study, I did not have data on which districts employing instructional coaches were producing the greatest increase in EOC composite proficiency rate until the statistical analysis was complete. As a result, I did not approach the district with information and requests to interview until obtaining and analyzing the

quantitative data. The qualitative portion of this study was predicated on the assumption that question two would produce positive results in terms of increase in proficiency rate.

Definitions

Terms appear throughout this dissertation that address various facets of educational coaching and accountability in education. The following technical terms are provided as reference.

Cognitive coaching: Cognitive coaching is a process in which a trained coach works to move a teacher through a reflective, cognitive process involving a specific set of strategies (Costa & Garmston, 2002).

Instructional coaching: Instructional coaches utilize research based best practices in their work with classroom teachers. Instructional coaches promote teacher growth through modeling, reflection, data analysis, and high quality professional development.

Literacy coaching: Excellent teachers who work as coaches to lead, create, and direct a school's literacy program (Sturtevant, 2004).

Peer coaching: In peer coaching, teachers develop a mutually supportive, confidential interaction in which they develop and reflect on new strategies in a peer relationship (Showers & Joyce, 1996).

Professional (or staff) development: High quality professional development is defined as ongoing, research based, job embedded training in best practices (No Child Left Behind Act, 2001).

Student achievement growth: Student achievement is defined in this study as an increase in proficiency rates on End of Course test composite scores.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

The following review of literature first addresses the various types of teacher professional development coaching currently found in United States schools. Afterwards, the review narrows to consider literature related to the theoretical and conceptual context of instructional coaching specifically. After providing an historical perspective, I then detail the literature exploring the relationship between professional development and student achievement, and more specifically literature to support instructional coaching as professional development designed to increase student achievement. Chapter two concludes with the conceptual framework for this study.

History and Types of Coaching

Prior to widespread utilization of coaching in education, professional development for teachers was largely delivered on one occasion with little follow-up offered (Joyce & Showers, 1982). This type of professional development often left teachers disenchanted, and rarely produced positive results in student learning (Guskey, 2000). In the previously mentioned 1982 study by Showers and Joyce, when teachers were offered the typical one day delivery of professional development, only 10% of them actually utilized the new learning to alter their instructional delivery.

Coaching entered the educational arena in general, and professional development practice in particular, after years of being utilized in the business world to train new employees, educate veteran employees in new practices, and improve the bottom line (Flaherty, 1999). In essence, the philosophy is much the same, whether coaching in

industry, athletics, or education. The goal is to improve the “work” of employees by utilizing individuals who are skilled in their field and at “coaching” others in order to meet the desired goal.

Four predominant types of coaching models are used in schools across the country: peer coaching, cognitive coaching, literacy coaching, and instructional coaching (Cornett & Knight, 2009). Each of these models builds on a similar premise of guiding classroom teachers toward better teaching, but the models differ in implementation and philosophy. The existing multiple models add to the difficulty in pinpointing how coaches effect teacher practice. The tie that binds each of the approaches is their philosophical base in high quality, job embedded professional development.

Coaching dedicates extended time to the examination of instructional practice and attempts to connect teachers to create networks that enhance social capital and information flow....Coaching develops trust, instills collective responsibility, imparts an innovative orientation, and provides an example of professionalism around instructional practice (Taylor, 2008, p. 22).

While the four veins of coaching share the above description, each differs in practice and methodology.

Peer Coaching

Defined by Swafford (1998) as the experience of two teachers collaborating in and out of the classroom on instruction, planning, and resource development, peer coaching is the oldest form of educational coaching, and documentation of its roots exist from the early 1980s. Peer coaching is generally informal, and involves practicing

classroom teachers mutually supporting each other in a reciprocal relationship within one school. Joyce and Showers (1982) found that learning a new skill in a workshop did not ensure teachers would transfer the learning to classroom practice. When peer coaching was added after new learning from a professional development activity, Joyce and Showers noted an 80% gain over traditional workshop delivery on rate of transfer into classroom practice. Showers and Joyce (1996) determined consistent results in the years following their original work on peer coaching. They found teachers used the new learning consistently if peer coaching based on practicing new skills, mutual support, and data collection and discussion were present. Peer coaching, unlike other models, exists mostly as an egalitarian model, with teachers offering each other mutual support within a school.

Cognitive Coaching

Cognitive coaching, developed during the 1980s, offers a clear profile of expectations. The cognitive coach is a mentor who supports a teacher through the development and growth of thinking (Costa & Garmston, 2002). Cognitive coaching is generally conducted by a district level, full-time coach. Cognitive coaching is designed to increase student achievement and teacher efficacy, produce higher order teacher thinking, and provide teacher support (Edwards, 2008). Seven coaching methods are necessary in order to produce the goals noted by Edwards: modeling, explanation, coaching, scaffolding, reflection, articulation, and explorations (Dennen, 2004). Reports have been mixed on how much cognitive coaching effects student achievement, although evidence of greater teacher efficacy has been found (Dennen, 2004). While qualitative data on

teacher efficacy and support of cognitive coaching indicate positive results, little quantitative data on transferability to student gains has been reported.

Literacy Coaching

Literacy coaching, generally provided as a district level, full-time coach initiative to increase literacy within schools and across a district, often provides all subject area teachers support in literacy based instruction (Shanklin, 2007). Literacy coaching is similar to peer and cognitive coaching models in its general support of and belief in teachers helping teachers develop skills; it differs in its focus specifically on literacy based instruction across all content areas and in its focus on raising student graduation rates. Even while focusing on literacy skills, this model is one of the broadest in terms of potential support offered teachers. Literacy coaches are not connected to a specific theory, set of responsibilities, or methodology, and thus their role is often defined in broader terms than the other models (Cornett & Knight, 2008). Literacy coaches are “most effective when they support the implementation and monitoring of research based literacy interventions that classroom teachers can infuse into their instruction to develop students’ vocabulary, fluency, and comprehension” (Taylor, Moxley, Chanter & Boulware, 2007, p. 22). Literacy coaching does improve classroom instruction, and research findings indicate teachers are receptive to literacy coach support (Buly, Coskie, Robinson, & Egawa, 2006).

Instructional Coaching

While literacy coaches have a focus much attuned to issues related to student literacy and dropout rate, instructional coaches are more broadly defined in terms of

coaching teachers to encourage use of research based best practices in classrooms. Unlike cognitive coaches, who focus primarily on altering the teacher's cognitive domain, or peer coaches, who are fellow classroom teachers, instructional coaches work to address all curricula in order to improve instructional delivery (Taylor, 2008). Instructional coaches serve as full or part-time coaches who support district initiatives with the goal of improving student learning (Knight, 2008). Instructional coaching is "one form of instructional leadership...characterized by nonsupervisory/ nonevaluative individualized guidance and support that takes place directly within the instructional setting...intended to promote teachers' learning and application of instructional expertise" (Taylor, 2008, p. 13). Knight (2004) defines the instructional coach as "an on-site professional developer working in one school offering...on the spot, everyday professional development" (p. 33).

Instructional coaches are invaluable in helping teachers transfer research based best practices into improved classroom instruction (Knight, 2004). Coaching programs are based on volunteer teacher participation, involve coaches holding content focused meetings with teacher departments or teams, provide extensive modeling of best practices, and demonstrate ease of use (Knight). A key finding in coaching research is the value of building significant relationships prior to and during the actual coaching (Knight). Using knowledge of adult learners and Fullan's (2006) change theory, most coaching programs strongly encourage coaches to develop relationships with teachers prior to collaboration. Key in the establishment of these relationships is a foundation of trust between coach and teacher (Shanklin, 2007). The relationship must be collegial

(Buly, et al., 2006) and nonevaluative. Essentially the interaction is one in which the “coaches listen carefully and talk little” (Buly et al., p. 25).

Many instructional coach programs across the country adhere to the theoretical framework developed by the aforementioned Jim Knight. Based on several years’ study of coaching programs, the development of this theoretical framework stems from teacher input on reactions to modeling, interviews with teachers, and study of teacher implementation of best practices (Knight, 2007). Knight’s theoretical framework involves seven actions or qualities: “equality, choice, voice, dialogue, reflection, praxis, and reciprocity” (Knight, 2007, pp. 32-33) and focuses on the importance of and value in modeling, one of the key components of instructional coaching.

In order to develop teacher quality, Knight identifies three aspects of instructional coaching that occur in schools. He classifies coaching work as either technical (helping with training application), challenge (group problem solving), or collegial (support for reflection and cognition). While a coach might transfer among all of these roles on any given day, Knight stresses the value of coaching not only the struggling teachers, but all teachers, in efforts to meet the goal of increasing student learning for all students. “Coaching can move good teachers to become great teachers. It provides the strongest return on the investment of teaching” (Knight, 2004, p. 21). In a study on instructional coach effectiveness, (Knight, 2007) found a 70% increase in teacher practice of activities demonstrated during coach modeling.

Conceptual, Theoretical, and Practical Background on Instructional Coaching

One of the difficulties in producing systematic, large-scale studies on instructional coaching is the multiple ways in which coaching is both defined and practiced. One philosophy purports the notion that all coaching activities lead to one key goal: “developing instructional capacity-the heart of coaching” (Taylor, 2008, p. 13). Often, improving teacher capacity requires an individualized approach that concentrates on a synthesis of educational learning. An effective coaching program is described as having certain structural conditions that support coaches, a clear focus on adult learning, and strong instructional leadership (King, et al., 2004). In addition, coaching is often connected with other professional development and a large-scale focus on systematic improvement (King et al., 2004). Others concur with the need for system level focus (Poglinco & Bach, 2004; Walker, 2006). A study on instructional coaching results found that effective coaching involved extended and thorough system level support and evaluation (Walker, 2006). Knowledge that system level support is essential only proves worthwhile if systems know how and what to offer in terms of support; much of that understanding and the data to support it are still in their infancy.

Yet another definition of instructional coaching comes from research conducted at United States Department of Defense (DOD) schools. The model the DOD schools created involves assisting both faculty and administration in instructional improvement in order to raise student achievement. Findings indicate teachers must be provided adequate feedback and want to be mentored and taught by someone in a nonevaluative position in order to be effective (Makibbin & Sprague, 1993). The volunteer versus compulsory

nature of coach and teacher interactions has spurred much research and debate among those wishing to increase student achievement and teacher quality.

Regardless of participation methodology, instructional coaching programs often involve similar characteristics and goals. Teacher leaders as coaches are expected to be instructional specialists, leaders, and learners themselves whose primary goal is developing the teacher relationships and trust necessary to improve student achievement (Cameron, 2005; Harrison & Killion, 2007; Taylor, 2008). Instructional coaches play broad and far-reaching roles, roles that invariably fulfill the expectations of teacher leaders (Regge & Soine, 2008). “On any given day,” Regge and Soine note, “you might find us modeling a math lesson, problem-solving with a first year teacher, preparing professional development activities for the entire staff, attending a grade level collaboration meeting or facilitating a book study” (p. 26). In addition, the coach is a resource for all school members (Harrison & Killion, 2007; Makibbin & Sprague, 1993). Because of the variety in most coaches’ day, consensus can be found only in the qualities necessary to complete such tasks and the primary goal of increasing student achievement.

Instructional coaching roles vary largely because districts have different goals, needs, and resources (Kowal & Steiner, 2007). Nonetheless, these roles do consistently focus on one key need of improving student achievement. Districts across the country are required to develop professional development plans for their teachers when the districts fail to make adequate yearly growth as part of the terms of NCLB (No Child Left Behind Act, 2001). These professional development plans are based on sustainability and consistency, and coaching is encouraged as one key component to improvement (Kowal

& Steiner, 2007). Effective instructional coaching, designed to meet NCLB mandates, regularly includes excellent knowledge of content and pedagogy, and strong interpersonal skills (Borman and Feger, 2006; Kowal & Steiner, 2007).

School and District Roles in Instructional Coach Programs

Often, the potential success for instructional coaches lies out of the coaches' control and in the hands of school administrators and district office personnel. The decision to utilize the instructional coach model frequently originates in a school system's central curriculum office (Knight, 2006). The implementation process, the job description, and the resources provided coaches at the district level often have much to do with the desired future success (Taylor, 2008). At the school level, the principal determines the role of and more importantly the incorporation of the coach into the school culture (Jorissen, Salazar, Morrison, & Foster, 2008). Knowing best practices for coaches is critical, Knight notes, in order to effectively increase student achievement. Principals and coaches are encouraged to collaborate on practices that will have the greatest impact on students and teachers (Knight, 2005). The team approach of administration and coach can be used to jointly select teachers most in need of support, determine the specific professional development needs of teachers at that school, and encourage support of and participation with the instructional coach.

The collaboration between administrators and coaches is critical for effective teacher support. The coach work is a necessary division of labor for the principal (Steiner & Kowal, 2007). Steiner and Kowal stress collaborating on targeted interventions for teachers and evaluating yearly success in terms of teacher and coach interactions.

Continued focus on student learning and school level instructional goals is key to Steiner and Kowal's approach. In addition, "a coach's sole responsibility to a school is to support its school improvement efforts, which is very different than merely adding school improvement to the already growing list of tasks of school leaders" (Kostin & Haeger, 2006, p.41). One of the first steps in the partnership between administrator and coach is determining goals for student learning, then deciding what skills teachers need in order to meet those learning goals. Afterwards, the principal and coach collaborate on what coaching methodology best supports those needs.

School level administrators must ensure teachers feel safe enough to collaborate and risk being viewed as needy or struggling (Neufeld & Roper, 2003). The principal can establish an atmosphere of support and belief in the coach that will inspire trust from the faculty (Neufeld & Roper, 2003). Administrators are encouraged to be specific, encouraging, and supportive of coaches and their roles in the school (Johnson & Donaldson, 2007). This support will reduce the likelihood that teachers will view the coaches as an intrusion. Also encouraged are frequent and ongoing conversations between principal and coach to ensure the daily activities are still aligned with the overall goals and to identify teachers who most need support (Knight, 2007). Principals also need to openly support the coach's role, meet with the coach to discuss progress, and encourage continued coach professional development in order to ensure the coach is successful at the school (Killion, 2007).

Coaches are often charged with supporting both district level reform initiatives and working directly with teachers to improve student learning (Steiner & Kowal, 2007).

Great value exists in frequent meetings between teachers and coaches, and caution is encouraged in districts to clarify coaching roles prior to inception of the program (Steiner & Kowal, 2007). In terms of teacher and coach interaction, “A coach can help identify communication barriers and reveal what people are not saying” thus supporting district initiatives and making implementation more likely (Kostin & Haeger, 2006, p. 43).

Understanding the culture of a school is paramount to supporting initiatives and school level change. The more a district or school can plan time for teachers and coaches to meet and reflect on best practices, the more likely they are to see positive results (Kostin & Haeger, 2006).

School districts regularly face issues with implementing a program that looks quite different from past educational practice (Neufeld & Roper, 2003). The coaches’ primary goals are to move teachers toward a more collaborative atmosphere, and to encourage professional development for teachers that is “grounded in inquiry, collaborative, sustained, ongoing, intensive, connected, and engaging for teachers” (Neufeld & Roper, 2003, p. 3). These facets of professional development are often stressed in instructional coaching programs. In addition to educating teachers and administrators, coaches also have the power to alter school culture and change the focus to student learning (Neufeld & Roper, 2003). In order to actually alter instructional delivery on a broad scale, Neufeld and Roper stress coaches be “embedded in the district’s overall reform strategy and professional development plan” (p. 15). In addition, districts need to realize that results from coaching will not be immediate, especially since

trust must first be established (Neufeld & Roper, 2003). It is this district wide support that often determines a coach's success at a school.

While districts support coaches in terms of funding and job parameters, the expectation in return is an increase in student achievement (Killion, 2007). In order to facilitate the change, district support for coaches should begin with goal setting, theory of change involving actions needed, and a specific logic model that demonstrates the plan of action (Killion, 2007). A "reciprocal relationship" is also proposed (p. 24) between the coach and system, with mutually high expectations and support (Leary, 2008). Many districts also provide coaches with a schedule that allows for adequate time to meet with teachers so the collaborative, reflective process can happen (Knight, 2006). Coaches are encouraged to help develop evaluation rubrics for the coaching program to prompt mutual understanding and support from both the district and individual coaches (Knight, 2006).

While much of the initial work of coaches involves establishing trust and developing relationships, programs must still be monitored and accountable. The accountability described by Russo must be documented and followed and later adapted as necessary. Documentation of coaching work is often difficult since the work can be quite varied, even within a district (Knight, 2008). One possibility for districts to increase accountability and improve coaching implementation is to utilize a rubric for planning coaching work. Woodruff's rubric involves a checklist of popular coaching activities within a schedule that can be altered by month or week of implementation. The checklist encourages planning and reflection from both coaches and teachers, with ten stages of

potential teacher and coach interaction and collaboration (Woodruff, 2007). Not only does the coach have a record of the month's interactions, but both reluctant teachers and ones who are ready for additional and varied support are immediately obvious.

Coaching Roles and Responsibilities

Although much of the coach's potential success is determined by the principal's actions and district support, the coach plays the critical role of utilizing the skills necessary to invoke change. Critical coaching skills are those involving knowledge of content, pedagogy, and curriculum, an awareness of coaching resources, and knowledge of the practice of coaching (Brady, 2007; Feger, Woleck, & Hickman, 2004). In particular, the value in providing learning communities for coaches to practice questioning techniques and reflection is stressed (Feger, et al., 2004). Coaches also need to be

open minded and respectful of others' views...[have] optimism and enthusiasm, confidence and decisiveness. They persevere and do not permit setbacks to derail an important initiative they are pursuing....They are flexible and willing to try a different approach if the first effort runs into roadblocks (Ingersoll, 2007, p. 16).

While many teachers hold these qualities, few are willing to exchange using the skills with children for adults. In addition, coaches may need training in presentation skills, data analysis, and curriculum planning even if they have the necessary attributes (Ingersoll, 2007). In a 2007 study of Kansas City Public Schools coaches, data showed that networking was one of the most critical areas for coach success (Brady, 2007).

Knight's work on the Kansas City coaching project corroborates Brady's findings

(Knight, 2007). Instructional coaches need to meet weekly with other coaches, Brady noted, in order to debrief and strategize on best practices.

Further research is needed in aspects of specific instructional coaching programs and the elements of successful programs (Kowal & Steiner, 2007). In particular, information on the necessary skills and competencies coaches need to promote reform initiatives, to support effective coaching inservice training, and to develop methods for evaluating coaching programs need to be provided (Kowal & Steiner, 2007; Woodruff, 2007). Scheduling issues and managing time are factors influencing the success of coaching programs as well (Borman & Feger, 2006; Dempsey, 2007). While the ultimate aim of any program is to increase student learning, Borman and Feger validate what other researchers have found, that very little data exist on the relationship between coaching and student achievement.

The concept of personalized professional development based on individual needs is a new one for most teachers. Coaches have transformed how teachers perceive best practices (Hall, 2005; Knight, 2006). Rather than the previous top down approach to professional development, teachers who have worked with coaches tend to seek out new skills and information from their coaches, information directly related to what will help their students achieve more and meet learning goals. Working together is a difficult concept for many teachers. Collaboration is one of the key aspects of the coach and teacher relationship (Jorissen, et al., 2008; Regge & Soine, 2008; Russo, 2004). This collaboration is described as a challenge that requires a skillful leader (Lipton & Wellman, 2007; Steiner & Kowal, 2007). These conversations are easier if teachers feel

safe, if the goal is clear, and if the discussion is differentiated based on individual teacher needs (Lipton & Wellman, 2007).

The concept of cultural change as a coach role coincides with Vygotsky's Theory of Social Cognitive Development (Vygotsky, 1978). Vygotsky's four stages of zone of proximal development (assistance provided by more capable others; assistance by self; internalization, automatization, and deautomatization; and recursiveness through prior stages) are inherent aspects of teacher work in altering school culture, student learning, and teacher practices (Showers & Joyce, 1996; Vygotsky, 1978). One of the principal aspects of Vygotsky's theory (that cognitive development requires social interaction) is a basic premise of coaching. Contrary to traditional educational practice which operates on a theory of isolation, coaching focuses on opening discussion and on talking and sharing to generate change and growth. While much of Vygotsky's work is considered in terms of student teacher interaction, the theory fully applies to the work of instructional coaches. The premises of learning through talking, scaffolding based on performance, and individual assessment based on proximal development, all relate to sound coaching practices.

Coaches must also remain focused on results and on gaps in student learning (Cornett & Knight, 2009; Lipton & Wellman, 2007). Good coaching is centered on student work; is connected with district initiatives; and is job embedded, long term, and research based (Knight, 2007; Russo, 2004; Taylor, 2008). One of the key reasons for coaching success is the accountability it delivers to teachers and schools as a whole (Russo, 2004). Russo makes a critical point in terms of school coaches. Coaching alone

will not produce significant change, it is only with quality professional development, resources, strong leadership and school capacity building combined that produce student achievement gains.

Michael Fullan's work on educational improvement is naturally intertwined with coaching, since coaching at its core is about changing current practice. Instructional coaching involves, in many cases, attempting to alter adult behaviors in the classroom. Effective change is both top down and bottom up, which indicates that while the decision to incorporate instructional coaches may begin at the district level, classroom teachers must decide to what degree and in what method to make use of the resource (Fullan, 2006; Knight, 2009). Knight's theoretical framework for instructional coaching, mentioned earlier in chapter two, involves several of the qualities Fullan stresses as necessary to the change process. Knight's belief that choice and voice are critical components in any endeavor to elicit change in adults, and his encouragement of the value of dialogue during that change and reflection afterwards make a similar argument—if teachers do not see the value in and importance of the change, they will normally not make an attempt to do so (Knight, 2007).

Capacity building in order to invoke change involves strategies designed to increase group success and student learning, and of primary importance is the value in making fair judgments about what success means in terms of instructional coaching results (Fullan, 2006; Guskey, 2002). For coaches, capacity building happens through a combination of motivating, providing resources for, educating, and training the teachers with whom they work. Coaches also have value as builders of school culture where

growth and learning are central (Fullan, 2006; Joyce & Showers, 1982). This change in culture is critical to the work of coaches, according to Fullan.

Cultures do not change by mandate; they change by the specific displacement of existing norms, structures, and processes by others; the process of cultural change depends fundamentally on modeling the new values and behavior that you expect to displace the existing ones (Elmore, 2004, p. 11).

Essentially, change happens when coaches alter the learning environment of a school, an evolution that gives power and focus to the work of coaches (Fullan, 2006; Elmore, 2004).

Change is often difficult for adult learners. “Without support, a powerful practice, poorly implemented, is no better than one that is ineffective” (Knight, 2009, p. 509). Thus, not only do coaches need to promote best practices, but also ensure that implementation and follow-up conversations actually take place. In order to encourage change, trust is an inherent part of the teacher and coach relationship. In a 2005 study on perceptions of critical characteristics coaches needed for success, researchers determined that several months were needed to develop trusting relationships between teachers and coaches (Ertmer, et al., 2005). In addition, Ertmer, et al. found that success was determined in the first year of implementation by how many teachers continued to ask for support from the coaches. Because of the extensive time needed to develop these relationships, coaching success is often evaluated differently after the first year of implementation (Ertmer, et al., 2005; Reddell, 2004).

Research would suggest that if the end goal of instructional coach work is increased student learning, then focus must remain on that expectation in developing coaching programs (Knight, 2007, Smith, 2008). Smith (2008) designed a three-pronged conceptual model of instructional coaching that is similar to Knight's framework. In the first level of Smith's model, coaches build trust, observe and discuss with teachers, and develop Professional Learning Communities. In the next level, coaches support teachers as they initiate new strategies in the classroom. The third level of the conceptual model involves coaches continuing their own professional development and growing peer coaches and leaders within the schools they support. The goals in both Smith and Knight's models are similar: build teacher capacity and empower teachers to utilize learned best practices to improve student learning.

In order to promote change and growth in teacher behavior, coaches need to understand the previous frustrations of many teachers with traditional staff development. Valuable training and learning of new skills are irrelevant if presenters lack the ability and skills to transfer the new knowledge, thus even the best workshops will be ineffective in producing change (Knight, 2007). Teacher frustration with traditional staff development often stems from individuals from outside the school expecting change to happen with one-shot workshops. Teachers want their time to be valued and respected (Knight, 2007). Perhaps most importantly, "Improving the quality of life for teachers improves the quality of life for students and thus the quality of learning" (Knight, 2007, p. 10).

Much of this improvement can come from the mutual respect and equality instructional coaches establish to promote teacher quality and student achievement. A precedent has been set for utilizing successful classroom teachers to improve education for all. Steiner and Kowal (2007) point out that in 2005, over 60% of districts in the United States had used master teachers to help struggling schools. While these master teachers have varied roles depending on district needs and initiatives, successful coaches will consistently encompass strong pedagogical knowledge, content expertise, and interpersonal capabilities (Steiner & Kowal, 2007).

Research on High Quality Professional Development

Professional development for teachers, as with continued education in any field, is a critical component in long-term success for the individual being educated (Guskey, 2002). High quality professional development, designed to improve classroom instruction, has been found to increase student achievement (Wright, Horn, & Sanders, 1997). While entire states, districts, or schools are employing instructional coaches, viewing the coaching work as professional development for teachers and then measuring where and to what degree this is happening continues to be elusive.

Critical in seeking any connection in factors designed to improve student achievement is realizing first that professional development can improve classroom instruction and second that high quality instruction impacts student achievement. In a study on the Tennessee Value Added Assessment System, which examined the strength of teacher effects on student achievement, researchers found that

...The two most important factors impacting student gain are the teacher and the achievement level for the student. The teacher effect is highly significant in every analysis and has a larger effect size than any other factor in twenty of the thirty analyses (Wright, et al., 1997, p. 61).

In extrapolating additional data from the findings of this study, researchers found a clear connection between teacher quality and student achievement (Wright et al., 1997).

Before instructional coaching initiated in school systems, the concept of professional development itself was analyzed and essentially overhauled from previous practice (Weglinsky, 2002). In a 2002 study on the effects of professional development on teachers' instruction, researchers determined that when professional development addressed specific best practices, teachers were more likely to use those strategies in the classroom (Desimone, Porter, et al., 2002). Collective participation, active learning, and professional development related to reform, when incorporated as part of teacher professional development, all increased classroom use of taught skills by teachers (Desimone, et al., 2002).

Effective staff development is based on needs of the school, is focused on school improvement and specific tasks or skills, is connected to student achievement, and is continued over time (Butler, 1992). In addition, teachers will only implement new strategies that are considered both easy to implement and powerful (Knight, 2009). These aspects of professional development are the antithesis of what was often practiced in education previously, when a guru arrived to present a masterful idea for a day, and

teachers were left with great ideas and no game plan, and no focus on the specific needs of students in that particular school.

Productive staff development focuses on actual teaching activities, reflection, and assessing student outcomes (Darling-Hammond & Richardson, 2009). In a 2007 study on professional development, researchers determined that if professional development lasted less than 14 hours, no effect was noted in student learning, but significant student learning effects were noted in professional development lasting 30 to 100 hours over a six month to one year time period (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Essentially, the important questions we should ask in terms of professional development for teachers are “Is it worth it?” And “Can they do this thing?” (Knight, 2009, p. 510). If the professional development is not deemed worthy by teachers, then implementation is extremely unlikely. The sustained, ongoing professional development found to promote teacher growth and increase student achievement is embedded within the coaching framework.

At its core, professional development is meant to act as a change agent for teacher practice. In a 1994 meta-analysis on professional development, six critical components were discovered that must exist for successful staff development and school change. Hord’s meta-analysis determined these six factors were present in both large and small studies of professional development that changed the outcomes of a school: “develop and articulate a vision, plan and provide resources, invest in training and development, assess or monitor progress, provide continuous assistance, and create a context conducive to change” (Hord, 1994, p. 4-5). Hord noted that when schools encompassed the six

criteria for change through professional development, student learning increased (Hord, 1994). Research findings indicate the facilitative leader in the school must be responsible for utilizing and promoting the six factors for change (Hord, 1994).

Another key understanding in successful professional development is the clear focus on the end goal of first changing teacher practice and then improving student learning. Professional development can only work if it is focused on both student and teacher learning and a culture of support for and valuing of quality staff development is present (Killion, 1999). Also, if schools do not ensure student learning is the central goal of professional development, then student achievement rarely changes (Killion, 1999). In essence, there is great value in the classroom based follow-up support coaches can provide, particularly when considered in terms of the potential effects on student learning (Killion, 1999).

High quality staff development must be focused on student learning. In particular, Staff development, designed to produce results in terms of student learning, is based on student learning needs; is supported with resources and time and is embedded in the school day and year. It includes extensive opportunities for teachers to learn from and with each other in collaborative endeavors within a community of learners. It focuses on extending teachers' content knowledge and content specific instructional skills, and it incorporates multiple models of learning with extensive classroom based support (Killion, 1999, p. 181).

In order to sustain the many aspects of effective staff development, the entire model of how classroom teachers receive continued training has begun to change.

School level professional development is one of the least expensive methods for increasing student achievement. Classroom support is one of several components that must be present to build school capacity and effect student achievement (Halverson, Grigg, Prichett, & Thomas, 2007). The overall culture of a school, and the focus on student learning, must also be considered within classroom teaching (Halverson, et al., 2007). In addition, shifting the necessary teacher conversation away from individual students to more broad based subject or grade level discussion only occurred with appropriate leadership (Halverson, et al., 2007). As school leaders consider professional development and student learning gains at their schools, school level professional development, initiated by instructional coaches, often holds the answer to moving teachers towards use of and discussion about research based best practices.

The key goal of teacher professional development is to increase student learning, and instructional coaches are often hired to provide school level professional development. Champion (2003) suggests ways to not only facilitate knowledge into practice, but also ensure general accountability for professional development in terms of student growth. Coaches are encouraged to lay preparatory groundwork before major initiatives begin, to check on teachers' progress regularly, to base professional development on the differentiated needs of individual teachers, and to regularly assess whether teachers are using the skills they learn (Champion, 2003). Assessing classroom use of learned material is a critical component if the focus is on student growth. Coaching support is crucial during the practice phase after teachers acquire new knowledge, as is providing scaffolded support based on teacher needs and readiness (Champion, 2003).

Instructional Coaching as High Quality Professional Development

High quality, job embedded professional development is the base on which instructional coaches stand. Guskey (2002) encourages measuring staff development in terms of the end goal of student achievement, but first a measurement of who is using instructional coaching as professional development must be determined. While traditional staff development involves a one size fits all methodology, instructional coaches are expected to encourage reflection and individual growth (Knight, 2007; Taylor, 2008). Coaching is a key method for helping teachers improve student achievement and school culture (Knight, 2007). Much of this potential school improvement comes from educating teachers in how to be reflective about their practice and in learning how to establish an equal relationship based on mutual desire to improve (Knight, 2007). Perhaps most importantly, “a culture of coaching improves teaching and improves student learning” (Knight, 2007, p. 5).

Shulman (2008) provides a synopsis of why many K-12 schools across the country are now embracing coaching as means to improving student achievement. In describing what the coach provides the teacher, Shulman shares five processes by which the teacher is coached:

1. Technique, learned through endless drill;
2. Strategy, that allows the person who is coached to become capable of a conception of the work that will turn out to be pivotal in their eventual victory;

3. Motivation, which produces a ‘Rocky-like’ level of commitment that will help them exceed their own and others’ expectations;
4. Vision, where players come together in a new vision of the process and their capabilities for success; and
5. Identity, whereby the protagonist not only wins, but is transformed, with an internalized new sense of self. (p. 2)

It is through Shulman’s process that coaches can make a difference in student learning, even though, as Shulman later points out, the value of the coach can not accurately be assessed, as it is the performer (student) or even teacher, who in the end will be evaluated on respective performances.

Coaching and Student Achievement

While changing teacher practice is a central goal in instructional coaching, the core purpose is increasing student learning. Due to the recent implementation of instructional coaching, much of the early research has focused on identifying coaching methodology, and not on bottom line results in terms of student achievement (Cornett & Knight, 2009). Since few studies have been reported that attempt to link coaching and student achievement, a clear, research based link between coaching and improved student achievement has not been made.

While little quantitative data exist of yet on the connection between student achievement and instructional coaching, preliminary data from several districts and states on the effects of instructional coaching on teacher practice are promising. While assessing the actual impact of instructional coaches can be difficult, a 2006 study on the

effects of instructional coaching found that 85% of teachers who participated in a summer program working with instructional coaches were using the new strategies they learned within the first six weeks of school (Knight, 2006). In a 2008 experimental study on the effects of instructional coaching, researchers determined that teachers who worked with instructional coaches were significantly more likely than other teachers to adopt new practices and implement reform initiatives successfully (Knight, 2009).

One of the key factors in evaluating coaching effects is realizing that measurable results take time and continued program refinement to demonstrate growth in schools. One study attributed its lack of findings in assessing coaching in relation to student achievement to the brief time the program was in existence prior to evaluation (Kohler, Crilley, Shearer, & Good, 2001). In a study of the Pennsylvania High School Coaching Initiative (PAHSCI), program evaluators detailed results from the PAHSCI model for connecting the instructional coach to teacher quality and then to increased student achievement (Brown, et al., 2007). The report on PAHSCI notes that instructional coaches, by nature of their job embedded practice, can help individualize classroom level instructional practices based on teacher, student, and school needs and available resources. The evaluators found that teachers who both attended a workshop and were subsequently supported by an instructional coach were more likely to alter their instructional practices. In addition, evaluators found that the instructional coaching program was producing the desired results in student achievement growth. This mutual reliance and support builds community and culture which have been linked to entire school growth and student learning (Brown et al., 2007). The coaching role, while

ultimately designed to promote student learning, must first focus on multiple building blocks such as teacher growth and teacher change prior to and during the road to achieving student learning growth (Brown et al., 2007).

In an evaluation of the coaching program in Spokane, Washington, the researcher found that most teachers working with coaches were eager to advance to higher levels of expertise, and wanted more time with their coach than was available (Black, 2007).

Black's findings indicate that once trust is established, teachers seek out the instructional coach to improve instructional practice. The expectation goes both ways, because once district leaders have the coaching program in place, teachers are expected to utilize the coach's services, improve instruction, and increase student achievement (Black, 2007).

The link is clear and well researched between teacher quality and student achievement, and several studies have demonstrated that high quality, sustained professional development increase teacher capacity (Weglinsky, 2002; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). Evidence of a direct connection between student achievement and instructional coaching is sparse, yet most coaching programs are only now at a point where summative evaluation is even feasible. Nonetheless, a lack of understanding about the work of coaches is risky in times when success needs to be measured and money is scarce (Knight, 2005).

One of the few studies providing this link between coaching and student achievement comes from a district in Texas. In a study on middle school instructional coaches and struggling students' achievement, Reddell (2004) found that student achievement increased significantly, both overall and with each subgroup, in the district

schools employing instructional coaches. The Lewisville, Texas, school district dedicated money to employ eight instructional specialists who worked as instructional coaches in the district's three schools with the highest percentage of at risk students. All three schools saw dramatic increase in student achievement results at the end of that first year. Among their components for success, "a strong sense of team" and "ongoing learning" for coaches were cited (Reddell, 2004, p. 23-24). Also noted in the study was the value in and importance of "360 degree assessment" (p. 25) of the program, assessment which led to the shared understanding that the coaches were the difference to which the district attributed its success. The coaching team did work only with three of the most needy schools in the district that first year, and no high schools were included in the study.

In an Ontario study of the effects of coaches on student achievement and teacher efficacy, results indicated that "student achievement was higher in classrooms of teachers who had more contact with their coaches" (Ross, 1992, p. 51). Ross evaluated 18 teachers in their use of a new history curriculum, and found through student achievement test results, interviews with the teachers, and self-reported teacher results that the more time teachers spent with a coach, the better their students performed. One delimitation of the study is that the 18 teachers in the sample could choose to seek out a coach if they wished, but the interaction was not compulsory. Ross suggested future research indicate the amount of interaction between teacher and coach be identified in relation to student achievement.

An additional study comes from a South Carolina initiative with science and math coaches. In a rural South Carolina elementary school, a science coach was hired as part of

a three year statewide commitment. “The research demonstrated that students scoring proficient and advanced in science in [the] elementary school increased 27% in one year....District administrators pointed to the only change made at the school-the addition of a science coach” (Dempsey, 2007, p. 11). Interestingly, scores in math, English, and social studies also increased markedly at the school (Dempsey, 2007). The science coach indicated time was originally the key issue in working with classroom teachers, and cited creative use of available time as a major factor in the school’s success. This coach was assigned to only the one school for the three year period (Dempsey, 2007). Time and scheduling, in addition to district level implementation of the coaching, are often cited as issues in determining instructional coaching success.

Conceptual Framework

This research encompasses both Knight’s theoretical framework on instructional coaching and Guskey’s five levels of high quality professional development evaluation. Knight’s framework addresses the definition of coaching that will be utilized in this study. Guskey’s evaluation framework will be used to address the research questions in the study and to analyze the instructional coaching as defined by Knight against the actual practice of coaching within schools and districts.

Knight (2009) presents a framework for coaching that delineates an educator’s change in practice and potential results when working with an instructional coach. The coached educator, through the scaffolded support of the instructional coach, holds “new experiences, new actions, new thoughts, new beliefs, and new points of view (p. 174)” all of which result in student achievement gains. Knight proposes that adults can alter their

thinking and practices if supported by someone trained in adult learning theory and grounded in sound coaching practices. He encourages reflective questioning, dialogue, and data discussion between teachers and coaches to move the teacher towards growth and development. Knight makes a critical point in terms of the coach's role in the school. He notes the importance of the understanding that coaches' work is to improve student learning, not necessarily to support teachers. While certainly supporting teachers will lead to student learning, the critical premise in terms of instructional coaching is that coaches are present in schools for the foremost goal of improving student learning.

Guskey's (2002), model for evaluating professional development also echoes the goal of impact on student learning. While Guskey's chart (see Appendix A) does include the typical evaluation of staff development; for instance, participants' reactions, it also includes the aspects so often excluded from traditional, one time inservice training, namely, participants' learning, organization support and change, participants' use of new knowledge and skills, and student learning outcomes.

Guskey notes the general lack of evaluation of any professional development in terms of the end goal of increasing student learning outcomes (Guskey, 2002). Of Guskey's five levels of professional development evaluation, the first four (participants' reactions, participants' learning, organization support and change, and participants' use of new knowledge and skills) have been evaluated (Barr, Simmons, & Zarrow, 2003; Cornett & Knight, 2009; Desimone, et al., 2002; Ertner, et al., 2005; Kohler, et al., 2001), typically through qualitative means. It is in the fifth area, in which Guskey notes that the information on professional development assessment could be used to both improve the

coaching program and demonstrate impact on student learning, that we lack quantitative data.

If the primary goal of all professional development is to increase student achievement, then we must have some method for measuring professional development in terms of that goal. Guskey (2002), in the fifth level of professional development evaluation mentioned earlier, proposes that all professional development evaluation ultimately lead to a measurable impact on student learning. Guskey encourages leadership to evaluate professional development in order to determine goals, evaluate those goals, obtain evidence about the goals, gather information regarding evidence and application of the professional development, gather evidence of student learning in relation to the professional development, and share findings. These goals for evaluating staff development are appropriately administered by either a school level coach or district leadership, but the key is focusing on current status and plans to meet the established goals.

Figure 1 illustrates the conceptual framework that guided this research study. The figure outlines the customary framework for instructional coaching implementation. The district level components include expectations and necessary practices at the district level for instructional coaching implementation, as indicated by Knight (2007) in his work on implementing successful coaching programs. The individual instructional coach traits are those regularly found in successful coaches, as determined predominantly from teacher feedback and qualitative studies (Brady, 2007; Makibbin & Sprague, 1993; Regge & Soine, 2008; Walker, 2006). The coaching cycle involves a combination of both the

district level components and the individual coaching practices. This research explains to what extent either these district or individual coaching practices are utilized in North Carolina high school coaching programs. In addition, as the research identified a district with student achievement growth following high school instructional coach implementation, a more specific explanation of the combination of these practices is presented via qualitative interviews and analysis.

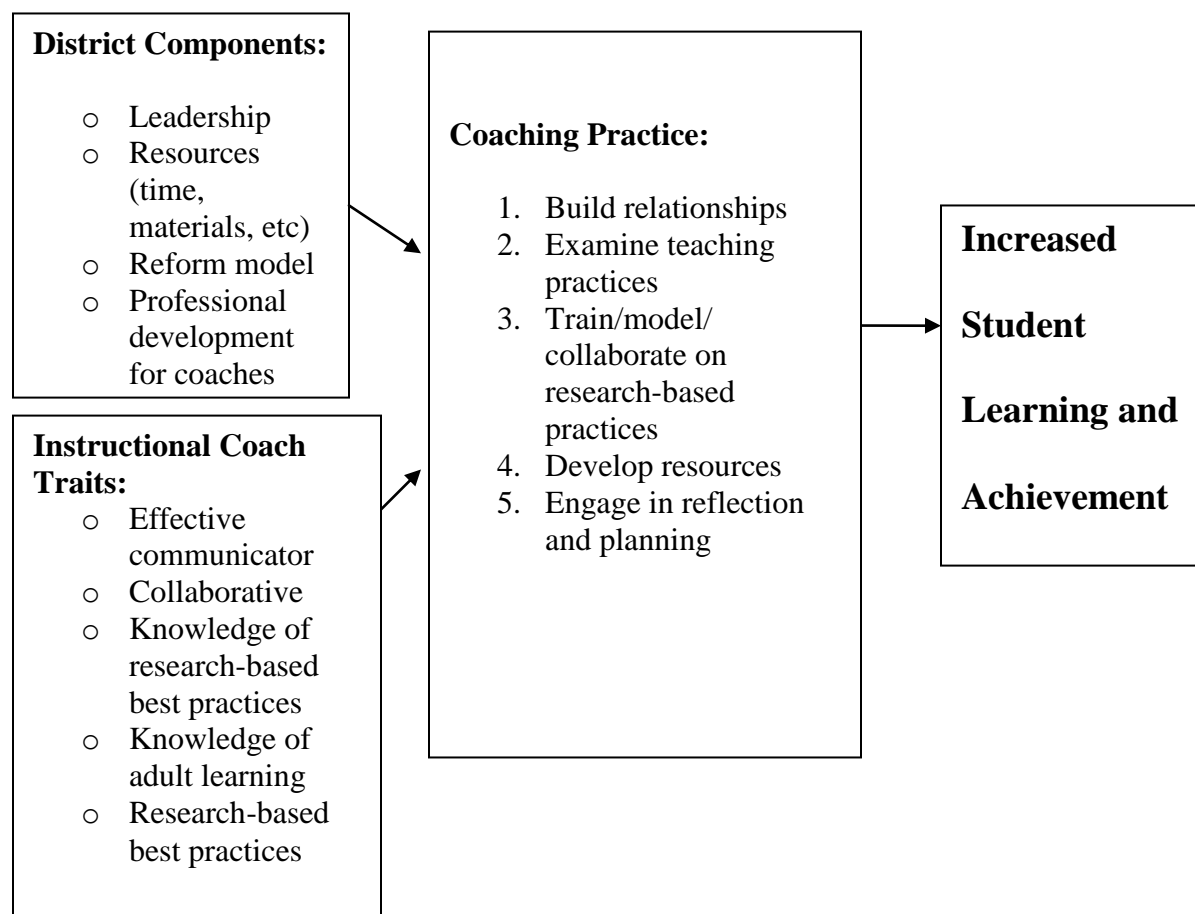


Figure 1: Conceptual framework of this study.

In summary, much of the research on coaching is theoretical and drawn from what we know about adult learners (Borman & Feger, 2006; Dempsey, 2007), research based best practices for teaching (Knight, 2005; Newfeld & Roper, 2003; Taylor, 2008), and effective professional development (Darling-Hammond, 1998; Darling-Hammond & Richardson, 2009; Guskey, 2000). Qualitative studies reviewing the effects of coaching on classroom teachers' perceptions indicate if a teacher and coach relationship is developed, teachers are willing to listen and alter their instructional practices (Barr, et al.,

2003; Ertmer, et al., 2005; Knight, 2005). Qualitative studies have also determined that specific skills are needed by coaches in order to alter teacher capacity and school culture (Cameron, 2005; Champion, 2003; Smith, 2008). Research on well received coaching styles indicates coaches need focused time for individual, small group, and whole school discussion, modeling, and reflection (Cornett & Knight, 2009; Killion, 2007; Knight, 2007).

The available research on instructional coaching parallels Guskey's first four levels of professional development evaluation: participants' reactions have been documented (Brown, et al., 2007; Ross, 1992), participants' learning has been assessed through multiple modes (Regge & Soine, 2008), evidence of organizational support and ensuing change is well documented (Reddell, 2004), and examples of teacher participants using the knowledge they gain from instructional coaches has been found (Brown, et al., 2007; Koh & Newman, 2006). The gap lies in Guskey's fifth level of professional development evaluation. Data on student learning outcomes in relation to instructional coaching are virtually unavailable, in part because the relationship between coaching and student learning is difficult to assess, and in part because evaluation of instructional coaching programs is in its relative infancy. This research examines how district level components and coaching traits combine in coaching practice towards the goal of producing student achievement outcomes, as illustrated in the conceptual framework.

CHAPTER THREE: METHODOLOGY

As a reminder to the reader, the purpose of this research was to investigate high school coaching practices in North Carolina schools and explore the relationship between coaching and student achievement. This methods chapter is divided into the following sections: participants, data sources, data collection procedures, and data analysis procedures. The research questions guiding the study are:

1. In what ways is instructional coaching implemented in North Carolina high schools?
2. What is the relationship between high school instructional coaching implementation and student achievement?
3. What are the characteristics of high school instructional coaching programs in districts with high student achievement growth?

Research Design

This study followed a mixed-methods design, defined as follows:

...The collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research (Creswell, Clark, Gutmann, & Hanson, 2003, p. 212).

In order to examine the complex issue of instructional coaching and its relationship to student achievement, a mixed-methods design was used. The quantitative portion of this study allowed me to evaluate the extent to which coaching is occurring in North Carolina

high schools and if a relationship existed between coaching and student achievement. The qualitative portion of the study allowed me to explore the characteristics of a successful coaching program. Rather than completing the study with only information about which districts demonstrate a relationship between high school instructional coaching and student achievement, I also wanted to explain the characteristics of an extreme case where demonstrated increase in proficiency rate on EOC composite scores was exemplary.

The visual model of this research study is explained in Figure 2.

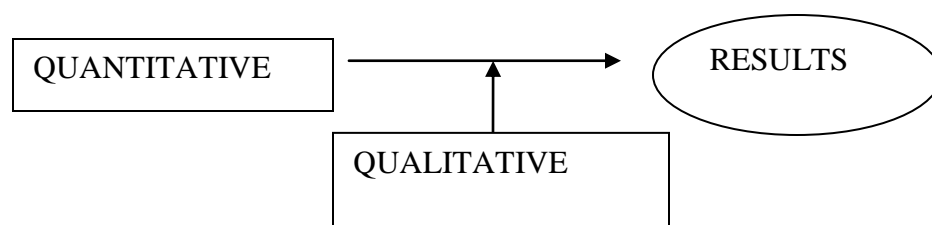


Figure 2: Visual model of research study.

The quantitative phase of this mixed-methods study addressed research questions one and two, and involved analysis of survey results from North Carolina public school districts regarding their implementation of instructional coaching at the 9-12 grade level. The survey addressed research question one. Question two involved comparing student achievement trends in districts employing high school instructional coaches to state averages on that same achievement data for that year. These results were analyzed to determine if a relationship existed between coaching implementation and student achievement. After evaluating the quantitative portion of the study, I then used a

qualitative explanatory design to illuminate the coaching program of the district with the most growth in student achievement (answers question three). This portion of the study occurred only after data analysis in question two revealed one particular district with significant increase in proficiency rate. The Notation System for this sequential approach to data collection is QUAN→qual (Creswell, et al., 2003).

Morse (1991) proposed a sequential triangulation design with quantitative data preceding qualitative data when the researcher is focusing on the collection of quantitative data first and most importantly, with qualitative data collected to further explain and support quantitative findings. As Creswell (1994) noted, I followed the dominant-less dominant model in this study. The quantitative portion was correlational and used both archival achievement data and new survey data. After evaluating the quantitative portion of the study, I used a qualitative explanatory design to explore the coaching practices used in the district with the most growth in student achievement. Following is a description of the quantitative and qualitative phases of the research study. The two portions of this study were integrated during the data interpretation phase.

Population and Sample

Sampling strategies are different for all three phases of this study. The population for this study is all public high schools in the United States. The sampling frame for this study was all public school districts in North Carolina.

Quantitative Phase

The sampling frame for research question one came from all 115 school districts in North Carolina, and the sample included those districts that replied to the survey either

electronically or by phone. The North Carolina Department of Public Instruction (NCDPI) publishes an annual online directory that includes names of curriculum directors for all 115 school districts in North Carolina. Secondary curriculum director names were retrieved from the directory and located on each district's web site to determine the email address for each director. For those districts who did not respond to the survey in the given time frame (explained later in this chapter) I called the district to request the needed information. Seventy-five districts responded to the online survey in full, and data were collected by phone for a few questions from the remaining 40 NC school districts.

The sample for research question two included all districts in North Carolina who indicated in the survey that they employ high school instructional coaches. Trend data from the NCDPI school report card were analyzed on a district specific basis beginning two years prior to the inception of the district's instructional coach program to the 2008-2009 student achievement results.

Qualitative Phase

Once findings from the analysis of coaching and proficiency rates on EOC composite scores were compiled, I purposefully sampled the extreme case district with the largest gains in proficiency rate from the 2009-2010 school year that employed a high school instructional coach. This achievement data was not available for research question two analysis. The district was selected in terms of greatest proficiency rate increase on EOC composite score in the coached high school. Student achievement and largest gains in proficiency were defined in relation to state average EOC test score composites. I

sought interviews with both an instructional coach and a curriculum director in this outlying district. There were a total of two participants in the qualitative phase of the study.

Data Sources

Data sources for this research included the survey, NC School Report Card data, and in-depth interviews. Each of these data sources is described in more detail below.

Survey

Data for research question one came from the instructional coach survey. The instructional coaching program survey involved a combination of items I developed and a coaching survey developed as part of a program evaluation for the Chicago City Schools coaching program (Feranchak, 2008). The combined survey was designed to determine the degree to which North Carolina school districts were utilizing instructional coaches in their schools (see Appendix B). The survey, after soliciting the name of the responding district, inquired first about the existence of high school instructional coaches as a gatekeeping question to the rest of the survey. Several questions regarding years of coaching in the district and number of schools the coaches served were followed by 14 items designed to solicit information on the structure and framework of the coaching program in the district. In addition, the survey included a chart with services coaches typically provide in schools regarding the amount of time coaches were expected to spend on the activity.

Validity evidence for the survey instrument was sought by asking an expert panel to review the survey. The panel consisted of individuals knowledgeable about

instructional coaching. This panel was also asked to review the survey by responding to a feedback questionnaire. The expert panel helped determine if the survey was aligned to my first research question. See Appendix C for the email request to expert panel members and the feedback form. Feedback from the expert panel prompted the addition of a survey question regarding relationship building between coaches and teachers, because several of the experts felt establishment of relationships was critical to understanding the nature and philosophy of a district program. In addition, I included a selection choice for “part-time with no other responsibilities” as a choice for coach employment status. Also, I revised several logistical aspects of the online survey itself for greater clarity and ease of use.

Survey reliability was determined using the test-retest procedure. I piloted the survey with a small group of six regional curriculum directors, then waited two weeks and readministered the survey. I then compared the survey results to determine reliability. The test-retest reliability determined that similar results were found on repeated administrations of the same instrument (Creswell, 2005). Test-retest reliability regarding percent agreement ranged from a low of 66% on two questions to 100% agreement on the remaining questions. In addition to reliability statistics, the survey issued to the pilot study group included a feedback form on the survey items and instructions (see Appendix D). The pilot group feedback helped me determine that several questions about instructional coaching lacked clarity, but were overall appropriate for individuals who would have knowledge of instructional coaching. I did revise one question to include additional coaching professional development choices listed by the pilot group members.

In developing the web based survey, I used information from Dillman, Smyth, and Christian (2009). I utilized advice from their book to develop contact email scripts for curriculum leaders. I then chose to present small sets of items together on a page as per their recommendation. I started with a welcome and request email, and then contacted nonrespondents at two week intervals to increase participation. I used the information provided in the book to make my web based survey interesting and visually pleasing, and to arrange the survey questions and word the questions in such a way that response rates to each question would hopefully increase. The survey included drop down menus with demographic information in the beginning as well. Appendix E includes email requests for the survey.

School Report Card

Achievement data for research question two were extracted from the North Carolina School Report Cards. Each year, the NCDPI compiles data for each school in each district in North Carolina. Information may include student achievement data, size and type of school and district, graduation rate, school safety data, and more. For high schools, proficiency rates on all End of Course (EOC) tests are reported. These data are reported on NCDPI's website under the heading "School Report Card Data." The EOC tests are administered in specific subjects each year in all public high schools in North Carolina to determine growth of individual students from previous tests and to assess individual students' learning in that subject (NCDPI, June, 2010). The EOC tests are designed as summative assessments for the course or content area of the tested subject. NC Report Card data provide proficiency rates for each test annually, by school and by

district (NCDPI, June, 20110). Data were obtained from the NCDPI Report Card for the 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, and 2008-2009 school years.

The EOC tests and 10th grade writing test used in North Carolina public schools to obtain achievement data have been determined to be both valid and reliable through a five-phase testing protocol:

1. develop test specifications,
2. item development for tryout,
3. field test development and administration,
4. pilot test development and administration,
5. operational test development and administration (North Carolina Department of Public Instruction, January, 2009).

Curriculum leaders from throughout North Carolina collaborate on all phases of the testing protocol. Achievement data for the composite score included the 10th grade writing test and EOC tests in civics and economics, US History, English I, chemistry, biology, Algebra I, Algebra II, and geometry.

With the exception of the 10th grade writing test, the assessments are all multiple choice with a varying number of items. Scores are reported as both a scale score and proficiency level. Proficiency is defined as either a level three or level four score. The tests are administered annually to public school students in North Carolina. Because by definition instructional coaches may serve all content areas, the previously mentioned EOC tests and the 10th grade writing test were used to determine the relationship between instructional coaching and student achievement. End of Course tests composite scores are

calculated by dividing the number of students who scored a level three or four by the number of students taking the previously mentioned tests in a school or district. Students taking multiple tests would be included in the calculation for each test.

Interviews

The intent of the interviews was to “develop a detailed understanding that might provide useful information and that might help people learn about the phenomenon” (Creswell, 2005, p. 203). The explanatory design for the qualitative phase of the study allowed me to investigate the nature of coaching and a specific coaching program, both at the individual coach level and the district level. In particular, I wanted to explain the characteristics of the coaching program beyond what was captured in the initial survey. The participants (instructional coach and curriculum director from one district) were called to request a phone interview.

Interview questions for the curriculum director are located in Appendix G. These open-ended questions were designed as a semistructured guide to explore the district level coaching program from the viewpoint of a curriculum director. Interview questions for a district high school instructional coach, designed as a guide for a semistructured interview approach as well, are located in Appendix H. These questions were designed to explore explanation on how the district utilizes instructional coaches and how the district coaching program was developed. The interview protocols were developed based on findings in the literature review on instructional coaching, and then linked to my conceptual framework in terms of coach traits and practices and district support. I piloted the interview protocol for both the instructional coach and curriculum director with a

coach and director who were not selected for the qualitative portion of the study. No revisions were made to either interview protocol as a result of the piloting.

Data Collection Procedures

Data for the quantitative portion of the study were collected from the survey of North Carolina districts regarding instructional coach implementation. Student achievement data were obtained from the NCDPI. The webpage entitled “North Carolina School Report Card Data” provided composite scores for the selected districts. Qualitative interviews were conducted after quantitative findings were analyzed. Institutional Review Board (IRB) review took place before any pilot testing, recruitment, or data collection stages.

Survey Data

A link to the survey was emailed to participants. The survey was emailed individually to the lead curriculum director in each of the 115 N.C. school districts. A reminder email followed within two weeks of the first request. For those districts who did not respond within two weeks of the second request ($n = 40$), I then made a telephone request to the curriculum director in the district to complete at least the first two survey questions, with a final online survey response of 75 districts. Survey results were confidential but not anonymous, because I needed to match survey data to student achievement data for each district. Email requests for survey completion and follow up requests are provided in Appendix E. When email requests still did not succeed in all districts responding, I telephoned the assistant superintendent in charge of curriculum in the nonresponding districts to solicit their response to as many survey questions as

possible. The phone interview included first the question regarding the existence of a high school instructional coaching program in the district. Of the 40 districts called, seven had employed high school instructional coaches. Of these seven, I asked as many survey questions as the district respondents' time and knowledge would allow, with all seven at least identifying the years their coaching program had been in place.

NC School Report Card Data

For districts employing at least one instructional coach at a high school for at least 2008-2009 and 2009-2010 school years, survey data were reviewed in relation to available data through the NCDPI website. Online school report card data were collected retrospectively for the years in which coaches worked in the system and two years prior, and then compared to state average scores for the corresponding years. Achievement data were collected based on the length of time the coaching program was in place.

North Carolina School Report Card data were collected from the NCDPI website. I recorded EOC composite scores from districts that responded to the survey indicating they employ at least one instructional coach in grades 9-12. Data were recorded manually from the website, checked for accuracy, and then cleaned (Creswell, 2005) by having another individual review a subset (15%) of data entry for accuracy.

Interview Data

An extreme case demonstrating marked growth in student achievement that also employs a high school instructional coach was selected for the qualitative phase of this study. Data for the qualitative, explanatory portion of the study were collected from interviews with both an instructional coach and curriculum director from the highest

achieving district that employs an instructional coach (as determined in the quantitative analysis described previously). The district was contacted for permission to interview an instructional coach and curriculum director. The curriculum director was contacted by phone regarding the request. After speaking with the curriculum director, I then requested to interview the high school instructional coach. The selected district had only one high school and one high school instructional coach. The interviews were conducted via telephone. These semi-structured interviews were recorded with permission for later transcription.

Data Analysis Procedures

Data for the three research questions were analyzed collectively. Data were first addressed separately for each research question, and results from each phase informed the subsequent phases. The data sources were reviewed together to explain how and to what extent instructional coaching was being utilized in N.C. schools in terms of student achievement growth as evidenced by increased proficiency rates on the district EOC composite score.

Research Question One

Descriptive statistics were reported for each survey question based on responses regarding instructional coaching program implementation across North Carolina school districts. Answers to research question one were generated by looking across all districts in North Carolina.

Research Question Two

Only districts with at least two years of coaching data who began their program by the beginning of the 2008-2009 school year were included in data analysis for research question two.

Independent variables. The independent variables for research question two were defined by coaching literature regarding best practices. Survey data regarding the nature of high school coaching in NC provided information beyond merely the existence of coaching programs. Responses to these questions provided more specific information about NC coaching programs than was previously available. Once data from the survey were compiled, I then combined items as described into variables to look for degrees of coaching implementation. The table with variables, survey area, and survey question number can be found in Table 1.

Table 1

Matrix for Independent Variables in Research Question Two

Variables:	Survey Area:	Method of Describing:	Survey Question:
Variable 1: Typical coaching activities (operationally defined as a single number; based on an average of the five activities)	Chart of typical activities: analyze lessons, use assessment data, plan lessons, observe and conference with teachers, and model lessons	Average percent of time for the five activities	16.1, 16.2, 16.4 16.5, 16.7
Variable 2: Best practices-relationships	Confidentiality with teachers	Yes or no	14
Variable 3: professional development	Coach professional development	Yes or no	15.1, 15.2, 15.3, 15.4
Variable 4: Schools served	Working in one school or more	Yes or no	6
Variable 5: Coach and principal meeting	Frequency of coach/principal meeting	Either 2-3 times a month or less or weekly or more	13
Variable 6: Professional Learning Communities	School-level initiative—PLCs	Yes or no	18

Dependent variable. The dependent variable is trend in student achievement, identified as change over time. Data from a composite score of EOC performance were recorded for each coaching district. Due to my desire to explore a relationship between district instructional coaching programs and student achievement, the district was the unit of analysis utilized in this study. If included in research question two analysis, the district

EOC composite score was used in analysis. An exception involved a district employing a coach at only one of its district high schools; in this case alone, I analyzed school level EOC composite data. Student achievement data were indicated through NC School Report Card data as a single composite per year. I began with the two years prior to high school instructional coaching implementation and recorded the composite score for each consecutive year.

Student achievement data comparing the district high school composite score to the state average composite score were reviewed. I calculated deviations from the state mean rather than using the raw composite proficiency rate in order to eliminate potential influence of renormed tests that might suddenly change proficiency rates. Figure 3 illustrates the change over time variable development.

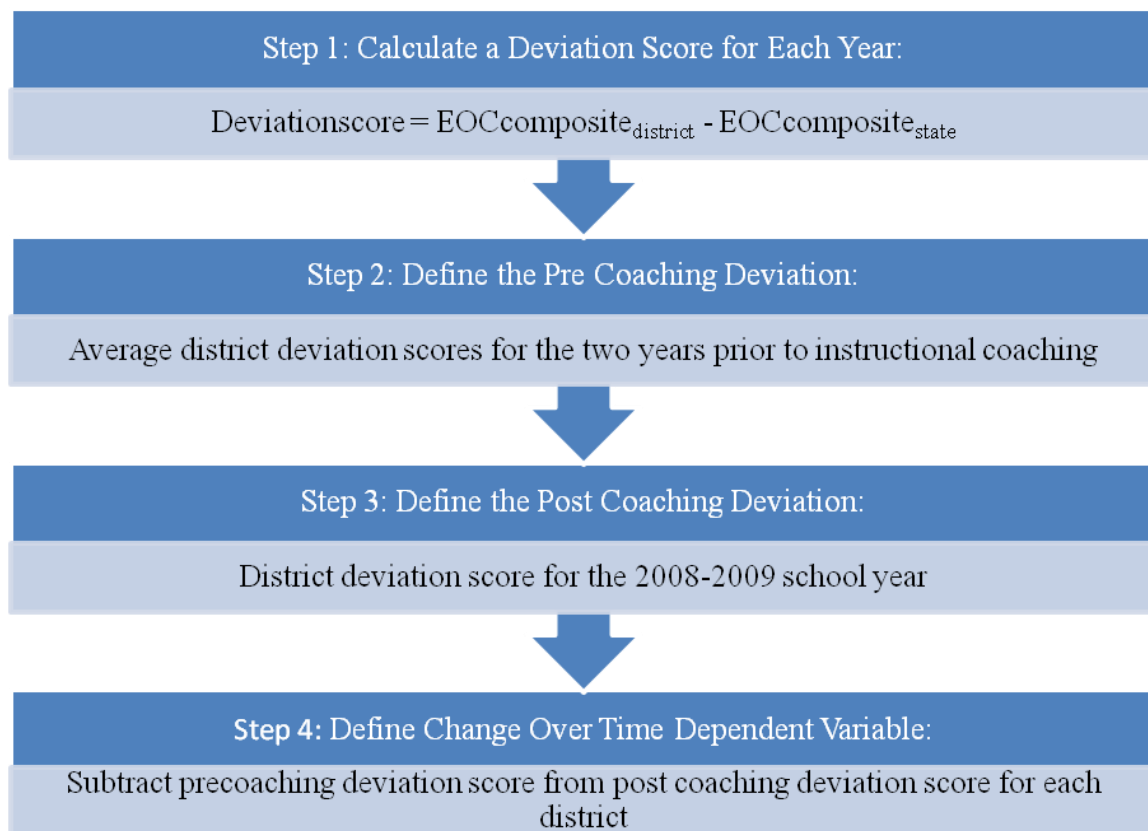


Figure 3: Steps in Transforming and Analyzing Change Over Time Dependent Variable.

In order to obtain the change over time variable, I first developed a yearly deviation score by subtracting the state mean from the district EOC composite score for each year of necessary data (two years prior to the district’s onset of high school coaching up to the 2008-2009 data). I next averaged the two years of “precoaching” deviation data for a stable “pre” estimate. The “post” coaching data consisted of the 2008-2009 deviation score. The change over time variable is a resulting subtraction of the “precoaching” from the “post coaching” deviation score. The length of time between

pre and post coaching varied based on length of each district's coaching program implementation.

In order to explore a possible relationship between high school instructional coaching and student achievement, several survey items were combined and/or included as variables. The first variable, "typical coaching activities," was developed by combining five items from the survey chart requesting percentage of time coaches were expected to spend on the activities listed.

Statistical Analyses. I used Pearson's product-moment correlation coefficient to determine a possible relationship to change over time in deviation score. For variables two through six, I first identified descriptive statistics to illustrate the mean differences in each group within each independent variable in relation to change over time. I next used the Mann-Whitney U test to determine which, if any, of the independent variables demonstrated a possible relationship with change in composite score over time. I used the Mann-Whitney U rather than the more commonly used t-test because assumptions for the t-test were violated, and because I wasn't considering whether the means of the two groups in each variable were different. I needed to observe instead whether the distributions of change over time were the same or different for the two groups in each variable being compared. Potential relationships were determined by evaluating Alpha (set at .05) in relation to the p value for each variable.

Research Question Three

Interview data for the qualitative phase of this study were examined in order to further develop quantitative findings from questions one and two. The framework for structuring the analysis for this qualitative phase comes from prior research on

instructional coach effectiveness and results from both descriptive and inferential statistical findings in research questions one and two. Transcription data from recorded phone interviews were analyzed by hand due to the small number of interviews. Interview analysis involved determining the nature of the district's high school instructional coaching program in greater depth and then evaluating the interview data in relation to literature on instructional coaching.

CHAPTER FOUR: RESULTS

The purpose of this study was to investigate the nature of high school instructional coaching in North Carolina. This study also sought to determine if a relationship existed between high school coaching practices and student academic performance as indicated by the change over time composite score. This variable was derived by subtracting a pre-coaching deviation score from a post-coaching deviation score. In the district with a strong positive relationship between coaching and the change over time variable, this study explored the particular nature of that coaching program through interviews with both the curriculum director and high school instructional coach in the district. Chapter four presents collected survey data regarding NC school district coaching implementation, data regarding the relationship between high school instructional coaching in NC and student achievement, and data collected from interviews with the district demonstrating a relationship between coaching and student achievement.

This chapter will present data as responses to the three research questions that guided this study. The research questions are:

1. In what ways is instructional coaching implemented in North Carolina high schools?
2. What is the relationship between high school instructional coaching implementation and student achievement?
3. What are the characteristics of high school instructional coaching programs in districts with high student achievement growth?

*Analysis of Research Questions***Question One: Instructional Coaching Implementation in North Carolina High Schools**

A survey about high school instructional coaching was emailed to the district curriculum director in each of the 115 school districts in North Carolina. Complete online survey responses were obtained from 24 districts, with partial information obtained from the remaining 91 districts via telephone requests. Descriptive statistics were generated for this question to determine range, frequencies, and percentages regarding coaching implementation in North Carolina high schools.

Of the 115 school districts in North Carolina, 39 (34%) reported employing high school instructional coaches at some point in the last five years. These coaches, while often similar in role and job description, are titled instructional coaches, literacy coaches, curriculum facilitators, or curriculum coaches. Districts employing these coaches are located in all eight regions of the state (as defined by NCDPI), from a minimum of three up to six districts per region. Districts employing coaches tend to be geographically adjacent, as noted in Figure 4.

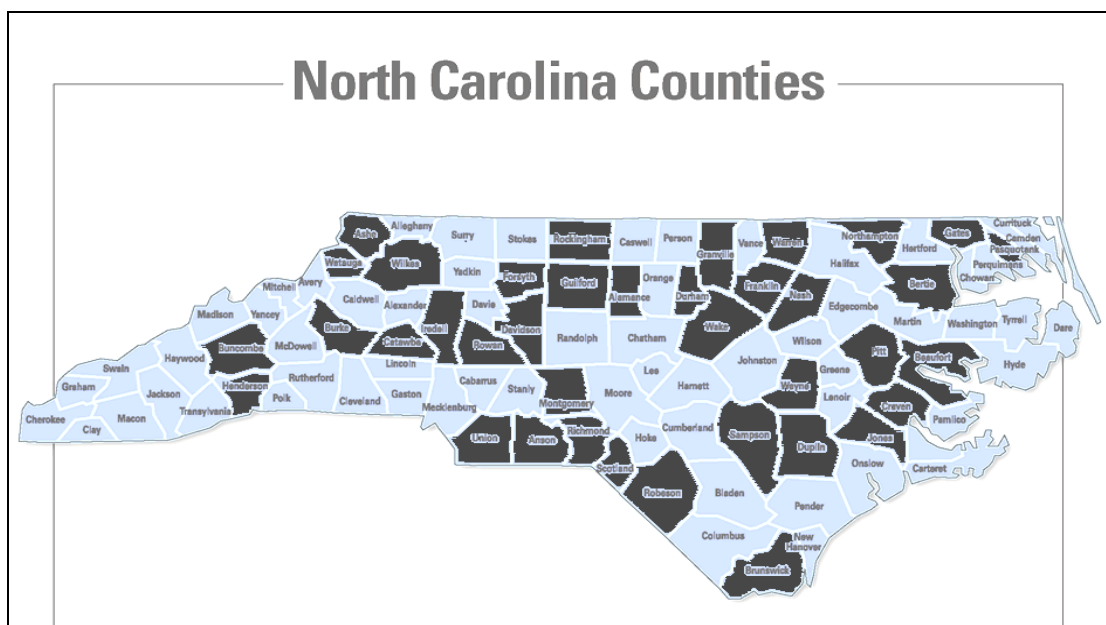


Figure 4. NC school districts (shaded in black) employing high school instructional coaches between 2005-2006 and 2009-2010.

The number of districts employing coaches rose each year from 2005-2006, with 32 districts utilizing instructional coaches during the 2009-2010 school year. Table 2 indicates the number and percent of districts employing coaches during school years 2005-2006 through 2009-2010. The number of districts employing coaches increased from 2005-2006 to the 2009-2010 school year by 20 percentage points, growing from 8% of North Carolina districts to 28% in 2009-2010. This statistic is particularly noteworthy when considering that eight districts originally employing high school coaches no longer did so in the 2009-2010 school year.

Table 2

NC School Districts Employing High School Coaches from Years 2005 – 2010 (N = 39)

School Year	<i>n</i>	%	New <i>n</i>	Discontinued <i>n</i>
2005-2006	9	8	9	0
2006-2007	15	13	6	1
2007-2008	20	17	6	0
2008-2009	28	24	9	1
2009-2010	32	28	9	5

Of the districts employing coaches at any time between the 2005-2006 and 2009-2010 school years who responded to the survey question regarding schools served ($N = 35$), five used coaches only at select high schools in the district, generally those high schools eligible for Title I funds through federal NCLB legislation. Of these five districts, two had coaches work at several of the selected schools in the district, and three employed one full time coach per school. In the other 29 districts, coaches were employed at all high schools in the LEA, and staffing models varied among these districts. Of particular note, while 54% ($n = 19$) of responding districts follow a coaching model where the coach works with only one high school, the other 46% ($n = 16$) of districts hired coaches to serve a wide range of anywhere from 2 to 11 schools each, with a median of three schools served per coach. No district employed more than one coach per school.

The survey question regarding coach employment yielded 34 responses. Coaches work full time in the coaching capacity in 69% of responding districts ($n = 27$), and part time in 31% ($n = 7$). The part-time coaches range in job description from part time with

administrative responsibilities ($n = 4$), to part time with no other responsibilities ($n = 2$), to part time with teaching responsibilities ($n = 1$).

Of the 35 districts responding to the question asking if coaches have a specific content focus, 43% ($n = 15$) replied their coaches do not have a particular content area on which they focus their work. Of the 20 respondents indicating that their district coaches have a specific focus, 55% ($n = 11$) of these districts focus on all core content (English, math, science, and social studies) while 45% ($n = 9$) address literacy across all content areas. The district that has coaches focus in only one content area noted they work only with English I teachers at present with plans to expand coaching support to additional content areas in the 2010-2011 school year.

Multiple districts incorporate either school or district level initiatives into the coaches' work. While Professional Learning Communities were noted as the predominant school level initiative (46%), additional initiatives mentioned repeatedly included literacy (14%), thinking maps (14%), and best practices (14%). Eight responding districts expect their coaches to incorporate a district reform initiative into their work with high schools. No two districts indicated use of the same reform model. Table 3 notes the district and school initiatives utilized by responding districts.

Table 3

School or District Level Initiatives Present in Schools with Coaches (N = 35)

Initiative	Number of Districts
Professional Learning Communities	16
Best practices	5
Thinking maps	5
Literacy	5
ClassScape	3
Data analysis	2
Formative assessment	2
Revised Bloom's taxonomy	2
Standards updates	2
Technology integration	2
Vocabulary	2
Differentiated instruction	2
OdysseyWare	1
Math and science partnership grant	1
New schools project	1
Read 180	1
Activinspire	1

Table 3 (continued).

Initiative	Number of Districts
Creating independence through student owned strategies	1
Talent development	1
Effective schools	1
Advancement via individual determination	1
Response to instruction	1
Learning focused strategies	1
Teachers observing teachers and sharing	1
America's choice workshop model	1
Raising achievement closing the gap	1

An often integral aspect of the coach's work involves interaction with the school principal. District level respondents indicated expected frequency of meetings between coach and principal anywhere from daily to never. Table 4 identifies the expected frequency of meetings between coach and principal in the responding districts.

Table 4

Expected Frequency of Principal and Coach Meetings (N = 25)

Expected Meeting Frequency	<i>n</i>	%
Daily	1	4
2-4 times each week	10	40
Once each week	8	32
2-3 times each month	5	20
Never	1	4

The relationship between coaches and teachers is expected to be confidential in 61% of the 23 responding districts. Districts focusing on relationship building prior to actual curriculum work between coaches and teachers were in the majority, with 83% of 23 responding districts indicating that relationships took precedence first.

Table 5 provides a series of common instructional coaching activities. Responses were provided by 20 districts in terms of percent of time high school coaches in their districts spend on “typical” coach activities. The activity “substitute teaching” was included in the survey but is excluded from the table because no responding district reported that coaches spent time in this activity. Also, while two districts responded in the “other” category for coaching activity, neither district included a description of what the other activities entailed. While “helping teachers analyze lessons” showed the highest median percent of time at 15%, all 20 respondents indicated coaches in their district spent at least 5% of their time on “helping teachers use assessment data.” “Modeling lessons”

presented the greatest range, but only one responding district indicated coaches spent no time on this activity.

Table 5

Median and Range of Percent of Time Spent on Typical Coaching Activities (N = 20)

Activity	<i>Mdn (in percent)</i>	Range (in percent)
Help teachers analyze lessons	15	0 to 30
Help teachers use assessment data	10	5 to 25
Model lessons	10	0 to 50
Observe and pre/post conference	10	0 to 30
Deliver school wide professional development	10	0 to 25
Meeting with other coaches	10	0 to 25
Help plan lessons	6	0 to 10
Plan and present a lesson	5	0 to 10
Help implement a curriculum	5	0 to 20
Administrative responsibilities	0	0 to 45
Facilitate department planning	0	0 to 25
Tutoring	0	0 to 20
Order materials and books	0	0 to 20
Administer assessments	0	0 to 15

In several districts there is an expectation that coaches spend the majority of their time modeling lessons for teachers. “Administrative responsibilities” yielded a zero median percent of time spent on this activity, but one responding district indicated 45% of their coaches’ time fell in this category; this district employs coaches as part time administrators. Activities with the lowest percent of time spent on them were “administering assessments,” “facilitating department level planning,” “tutoring,” and “ordering materials and books.”

One aspect of instructional coaching involves the training provided to coaches prior to and during their work in the schools. Table 6 illustrates the areas of professional development provided for district coaches and the frequency for each as noted by the 23 responding districts. “Best practices” was the professional development listed most frequently by responding districts.

Table 6

<i>Professional Development for Instructional Coaches (N = 23)</i>		
Professional Development Topic	<i>n</i>	<i>%</i>
Best practices	17	74
Data analysis	16	70
Presenting professional development	14	61
Adult learning theory	8	35
21 st century instruction	1	4
Revised Bloom’s taxonomy	1	4
National Staff Development Council coach training	1	4
Mindspring	1	4

In summary, 34% of North Carolina school districts have employed high school coaches at some point since 2005. Practices and methodology vary widely across the state in coaching implementation. The majority of high school coaches work full time in that role, serving anywhere between 1 and 11 high schools. More than half of the coaches focus on a particular content area or areas in their work, and 46% of coaches support Professional Learning Communities in their high schools. Coaches meet regularly with high school principals, with 76% meeting at least once each week. Most coaches spend the majority of their time helping teachers analyze lessons and use assessment data, modeling lessons, observing and conferencing with teachers, and presenting school wide professional development. The majority of coaches are expected to establish relationships with teachers prior to instruction and have a confidential relationship with teachers thereafter. Coaches receive a variety of professional development themselves, with the majority relating to best practices. As a reminder to the reader, the survey was addressed to a district level director and requested information on district expectations regarding high school instructional coaching implementation, rather than coaches' self-reported actual implementation.

Question Two: The Relationship Between High School Instructional Coaching Implementation and Student Achievement

To answer this research question, composite scores from the subset of districts from research question one implementing high school instructional coaching through the 2008-2009 school year were examined in relation to the state average composite score for

high school EOC tests from years 2005-2006 through 2008-2009. The 26 districts included in analysis for this research question met the following criteria:

- the district utilized a high school instructional coach program
- the program must have been in existence since at least the 2008-2009 school year
- the program must not have been discontinued

Of the 26 districts, seven had two years of coaching implementation, five had three years, six had four years, and eight had at least five years of high school coaching implementation. Initially, each of these 26 districts was matched with a corresponding noncoaching district but, upon inspection, this method did not provide an adequate match to the coaching districts. Instead, student achievement in the coaching districts was compared to the state composite.

As a reminder, the six independent variables for determining a possible relationship between coaching and student achievement are: typical coaching activities, coach relationship practices, coach professional development, number of high schools served, coach and principal meetings, and Professional Learning Communities. These independent variables were developed as a means to define instructional coaching implementation. The dependent variable, change over time, was developed by subtracting pre from postcoaching deviation scores. Also as a reminder to the reader, alpha was set at .05 for these analyses.

Table 7 shows the descriptive statistics related to the precoaching deviation from the statewide average, the latest coaching year deviation, and the change over time deviation for the 26 districts.

Table 7

<i>Descriptive Statistics for Precoaching, Postcoaching, and Change Over Time (N=26)</i>				
	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Pre overall	-21.30	11.85	-2.10	8.89
Latest coach year	-24.40	11.10	-3.90	10.00
Change over time	-13.85	11.55	-1.89	6.01

The mean for all three of the variables listed in Table 7 is below zero, indicating the average composite for the 26 districts employing coaches that met the previously mentioned criteria remained below the state average for the pre overall data, latest coach year, and change over time. Means and standard deviations altered minimally between pre overall deviation and the latest coach year.

The survey variable typical coach activities includes survey items from the chart of typical coaching activities. The items selected for inclusion in this variable are both identified in the literature as best coaching practices and related to instructional delivery in high school classrooms. The typical coaching activities variable is defined numerically as the percent of time spent on five typical coaching activities in a typical week. The scatterplot in Figure 5 demonstrates the weak negative relationship between the typical coaching activities variable and the change over time variable $r(16) = -.039$, $p = .887$. No significant relationship was found between the two variables, indicating that the amount of time high school instructional coaches spend on instructional practices to support teachers does not relate to change over time in student achievement.

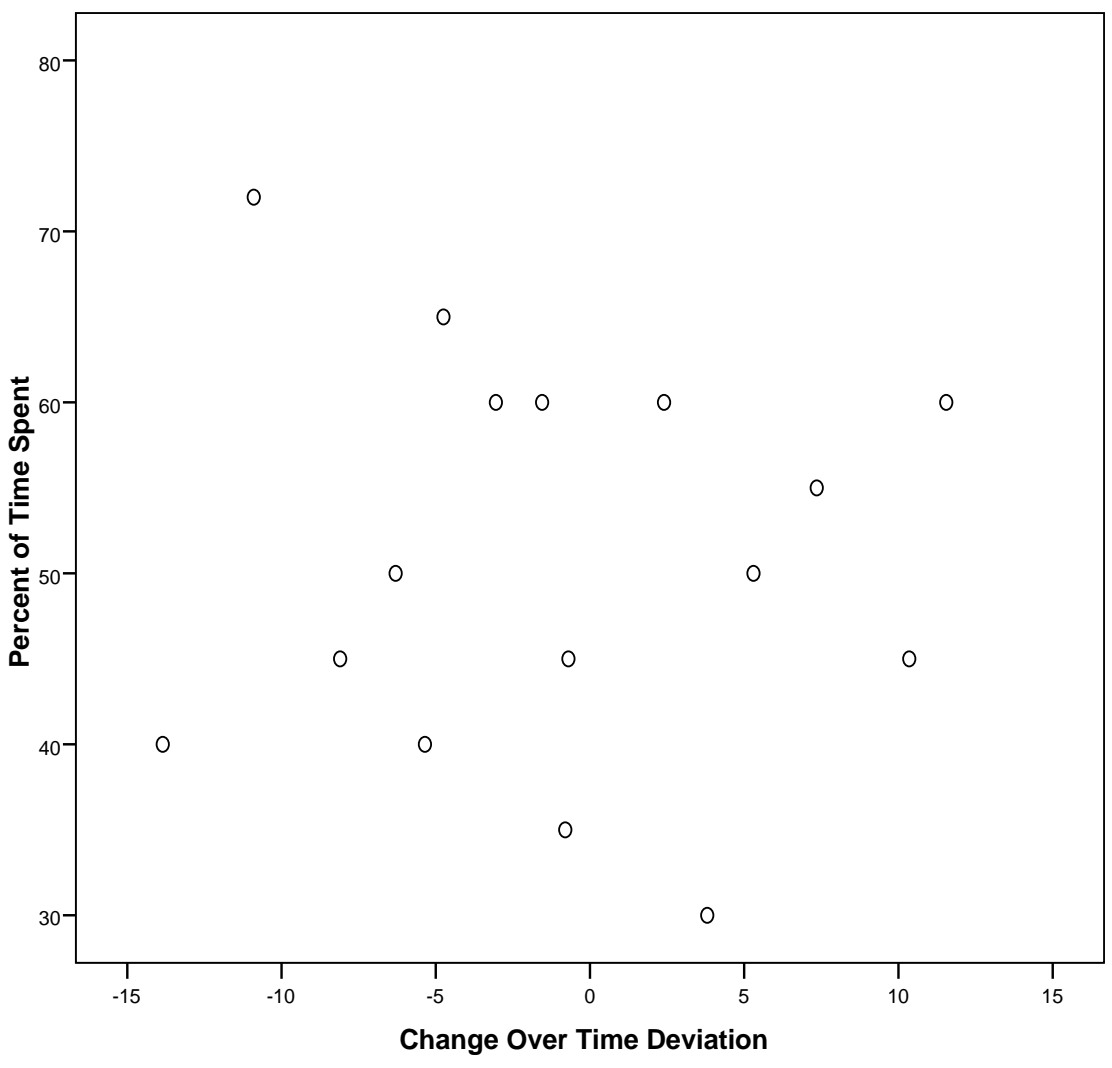


Figure 5: Typical coaching activities identified in instructional coaching survey related to change over time variable.

In order to evaluate the statistical relationship between the survey variables mentioned earlier in chapter four and student achievement, the Mann-Whitney U nonparametric statistical test was used. The Mann-Whitney is used to determine whether

whether the distributions of data on the dependent variable are the same or different for the two groups being compared.

Table 8 includes descriptive statistics for the group means for each independent variable and the statistical results of the Mann-Whitney test for the variables coach relationship practices, coach professional development, number of high schools served, coach and principal meetings, and Professional Learning Communities in relation to the change over time variable. Of note in Table 7 is first the mean change over time for the two groups nested in each variable. While minimal difference is present for four of the independent variables, the mean change over time deviation for principal and coach meeting frequency groups is slightly different, with those expected to meet at least weekly showing a mean change over time of 1.02 ($SD = 5.17$) as compared to those two to three times a month or less with a mean of -7.21 ($SD = 6.59$). While the group meeting at least weekly showed an overall mean gain between pre and postcoaching deviation scores, the group expected to meet less frequently netted over a seven point decrease in change over time relative to the state average. Nonetheless, relative to the size of the standard deviation, the mean gain is negligible.

Table 8

Relationship Between Coaching Variables and Change Over Time					
Variable	<i>Change Over</i>			<i>U</i>	<i>p</i>
	<i>Time</i>				
	<i>M</i>	<i>SD</i>	<i>n</i>		
Coach relationship practices				34.0	.92
Non confidential relationship	-.49	8.60	7		
Confidential relationship	-1.22	6.35	10		
Coach professional development				14.0	.78
Received professional development	-1.20	6.93	16		
No professional development	1.20	8.98	2		
Number of high schools served				74.0	.96
Served only one school	-1.79	5.24	15		
Served more than one school	-1.81	6.84	10		
Coach and principal meetings				7.0	.03*
Meet once a week or more	1.02	5.17	13		
Meet 2-3 times a month or less	-7.21	6.59	4		
Professional Learning Communities				45.0	.05
Support PLCs in their schools	.93	7.00	11		
Coaches do not support PLCs	-3.78	4.41	15		

* $p < .05$

Four of the Mann Whitney tests indicated no statistically significant differences between groups based on the coaching variables. The distributions in the groups did not

differ significantly for coach relationship practices ($U = 34, p = .92$), coach professional development ($U = 14, p = .78$), number of high schools served ($U = 74, p = .96$), or for Professional Learning Communities ($U = 45, p = .05$). At the $\alpha = 0.05$ level of significance, there is not enough evidence to conclude that coach relationship practices regarding confidentiality, coach professional development received, the number of high schools served, or the coach's support of Professional Learning Communities relate to growth in EOC achievement composites relative to the state average.

The Mann-Whitney test for principal and coach meetings was statistically significant, ($U = 7, p = .03$). This finding indicates a possible relationship between the distribution of change over time scores and the frequency of principal and coach meetings. Based on evidence from this test, group differences likely exist between those districts whose coach and principal meetings are expected to occur at weekly and those who are expected to meet less and growth in EOC composite test scores. A visual representation of this relationship can be found in Figure 6. Of particular note is the absence of any districts with positive growth in change over time when their coaches and principals are expected to meet less than weekly.

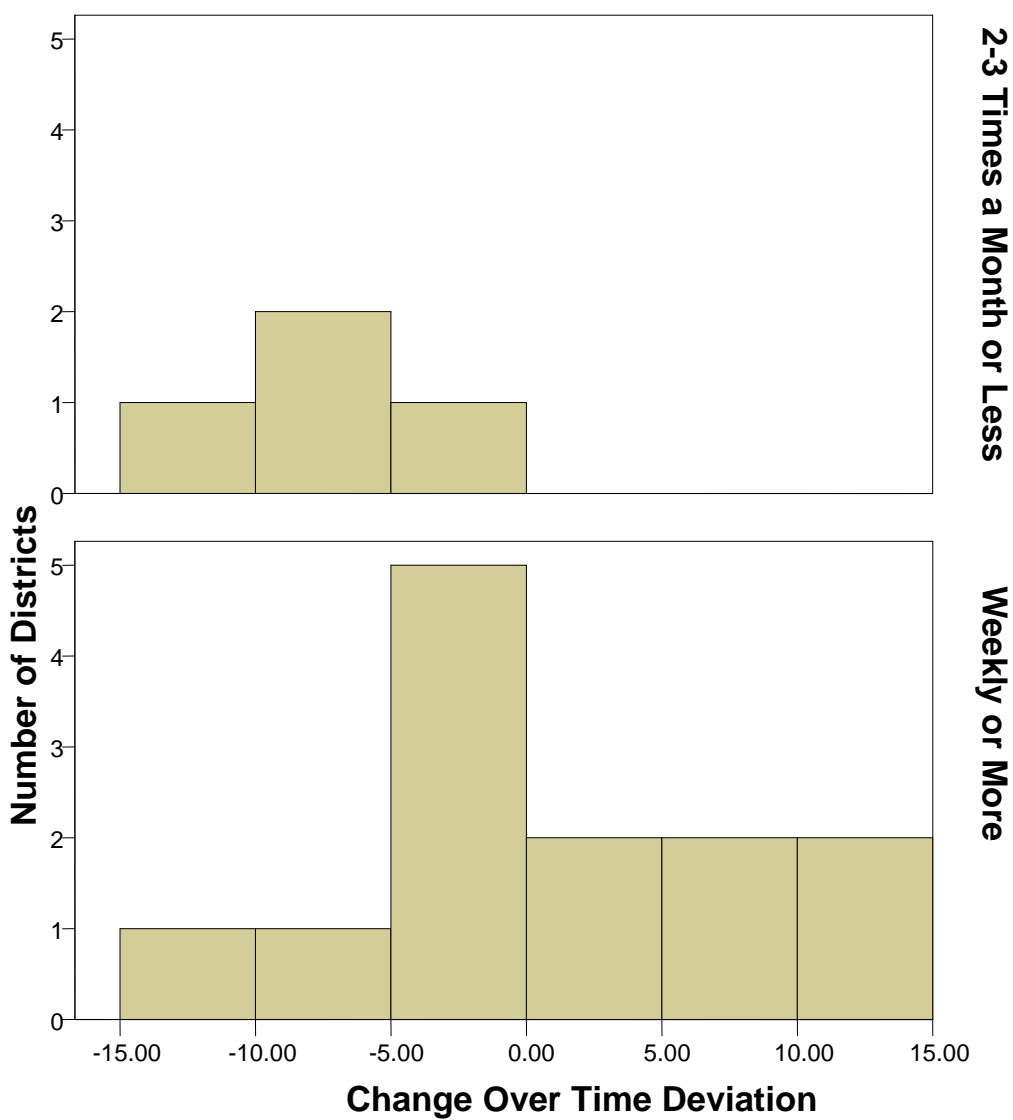


Figure 6: Change over time variable relationship to principal and coach meeting frequency.

In summary, only one of the six independent variables in research question two presented a statistically significant relationship with the dependent variable. A relationship was not determined between EOC test composite score growth and coach

confidentiality, support of Professional Learning Communities, amount of coach professional development received, number of schools the coach served, or typical coaching activities. A statistically significant relationship was found between EOC test composite scores and frequency of meetings between the coach and the principal. More frequent meetings related positively to increase in proficiency rate as defined by EOC composite score.

Question Three: Characteristics of a High School Instructional Coaching Programs in a District with High Growth

In order to answer research question three, data from statistical analysis in question two were analyzed to determine which, if any, districts demonstrated significant growth over time in student achievement based on EOC composite scores relative to the state mean from pre to post implementation of a high school instructional coach program. While six districts did produce a positive score in the change over time variable, indicating growth in EOC composite test scores in relation to the state average, only one district demonstrated marked gains to the extent warranting further explanation via qualitative analysis. Jones County school district, located in the Southeastern region of North Carolina, is a small, rural, high poverty district with traditionally low student achievement scores. Jones County Senior High School, the only high school in the district, went from an EOC composite score of 52.3 in the 2005-2006 school year to a composite score of 90.8 in 2009-2010. The state average composite scores for those years were 71.8 and 80.7, respectively.

In 2008, Jones County Senior High School was designated a turnaround school by NCDPI, and the school was thus directed to improve student achievement through both district means and state provided financial resources. One of the strategies Jones County chose to utilize was a full time high school instructional coach beginning in the 2008-2009 school year.

Qualitative interview data with the high school instructional coach at Jones County Senior High School yielded information regarding her role and capacity that in many cases coincided with best practices in instructional coaching, particularly those relating to the importance of relationship building, respect, and modeling (Buly, et al., 2006; Cameron, 2005; Harrison & Killion, 2007; Knight, 2008; Regge & Soine, 2008; Shanklin, 2007; Taylor, 2008). In addition, though, some rather nontraditional coaching practices are utilized by the high school coach in Jones County. Data from the instructional coach interview are provided here in reference to the key areas that the coach believes contribute to Jones Senior High School's student achievement growth.

The coach frequently mentioned the importance of data driven instruction in her work with high school teachers, in her evaluation of the data for the school, in collaboration with the administrative team, and in educating teachers in how to use data effectively. The coach noted,

A huge portion of what I have done to support Jones County Schools' goals would be to contribute to data driven decisions. I look at data on a daily basis. I work closely with administration to mold decisions for the school based on data that we collect.

The coach uses data to determine who needs to participate in the school's Great Expectations program, developed by the coach in 2009. This program provides extra support for students considered at risk, and often involves the coach herself providing instruction to the students. Tutoring and extra support opportunities range at the school from 30 minutes provided for each class period once each week, to after school tutoring with transportation several weeks before EOC tests both semesters, to intensive pull out instruction for struggling students three weeks prior to the end of each semester. The coach teaches students in each of the above capacities. She teaches all year for 40 minutes every day, providing intensive support and instruction to students struggling in their science courses. She teaches a full schedule (first, second, and fourth periods) for the last three weeks of each semester, working to fill in student learning gaps in science noted through benchmark assessment data. When asked about the unusual nature of this coaching activity, the coach replied,

I have to tell you that [teaching] has been a tremendous help to me to keep that focus on what teachers have to deal with and to be able to understand when they talk about an individual child. I can tell them, 'I've taught that child and this is something I did. I understand what you're going through.' I get to work with the children that get under every other teacher's nerves, and I can help.

The coach noted that the classroom teaching and tutoring she does encourage the respect and voluntary requests for support coaches often struggle to obtain. Because she uses other teachers' classrooms, her teaching provides opportunities to model best

practices for supporting struggling students. The coach commented, “A teacher whose room I was using said ‘I learned two new things today.’”

One of the traditional areas in which the coach has spent a significant amount of time is supporting Jones Senior High’s beginning teachers. In her first year as instructional coach, 12 beginning teachers were hired at the high school. As a full-time mentor for all beginning teachers at Jones Senior High School, she worked with these beginning teachers on everything from classroom management to data driven decisions, but tailored her support to fit the individual needs of each beginning teacher. She described support for a new science teacher that first year.

Many times I would observe him in a lesson, give him feedback, talk about data collected in the classroom; maybe on student engagement, attentiveness or grasping concepts. I would give feedback. Then I helped create labs and lessons that he could implement the next semester. We looked at EVAAS [Education Value Added Assessment System] data, and he moved all of his students, even honors: 12 honors students exceeded expected growth. His growth has been phenomenal. I would be honest and say ‘this is an area you need to work on’ and then sit down with him and develop an activity or show him the kit I created and say ‘this is something you may want to use.’ I gave him constant feedback.

In addition to support of beginning teachers, the coach credits her role as part of the administrative team with much of her success. “My principal has made me part of the administrative team; that has been a very important thing for my success. It’s given me some authority, part of the respect of saying I’m on the administrative team.” The coach

feels her voice is heard by the principal and assistant principal, and, in all things curricular, she makes many of the decisions. The coach talks almost daily with the principal about curricular issues and needs, teacher concerns, and program status. The nature of these conversations corroborates and potentially explains statistical findings from research question two regarding principal and coach meeting frequency and student achievement. While the coach is part of the administrative team, she does not conduct observations for the purpose of evaluating teachers. In fact, in collaboration with other coaches in the district, she developed a coaching observation instrument that focuses on highlighting positive behaviors while providing opportunities for conversations about best practices in instruction.

The instructional coach spends a portion of each day building capacity among the teachers, whether in seeing a good practice and encouraging that teacher to present and share with others on the faculty or pairing teachers so that peer collaboration may happen. She said, “I work more on common best practice strategies and getting teachers to move beyond behind the podium” [than on content]. Also, “I like to pair teachers to work together; to talk about topics where they meet together and let them collaborate.” In terms of school wide professional development, the coach has helped eliminate the need for outside professional development experts. She shared,

I can go to a math class and see an effective strategy being used. I then have that teacher lead staff development with everybody else. This is how we build capacity among our teachers. We’ve done really well in this; and no outside

presenter has been here since I started. All of our staff development has been done by our staff, usually a teacher. There have been some phenomenal results.

The instructional coach, largely due to forming her own work plan and developing her own strategies for helping make Jones High School successful, describes her role:

A support person for every person in the school, to provide them with student and teacher data that can be used to identify strengths and weaknesses, and take those strengths and build on strengths, take those weaknesses and provide strategies for weaknesses to make them strengths.

Several items of note about the Jones Senior High School coach make her situation unique in relation to what is often described in coaching literature:

1. She had a successful teaching experience at Jones High for seven years prior to becoming an instructional coach there.
2. She is considered a part of the administrative team.
3. She teaches full time to at risk students 6 weeks each year, in addition to providing 30 minutes of tutoring every day and several hours after school for 4 weeks of the year.

While multiple factors may have potentially contributed to Jones High School's student achievement growth in the last five years, the coach noted,

If my position were not here, the growth we have had would not have happened, not because I'm a miracle worker, but because there's not enough time in the day to provide one-on-one support or for teachers to analyze loads and loads of data.

The instructional coach position has been a very important role in school transformation. Without it, there's just not enough time in the day to make it happen.

In addition to interviewing the high school instructional coach to determine coaching practices at Jones County's high school, I also interviewed the district curriculum director.

One facet of the coach's role to which both the director and the coach credit success is working as part of an administrative team, all of whom model lessons for teachers; deliver individual, small group, and whole class instruction on a regular basis; and operate as a cohesive instructional leadership team at the high school. The director said, "She [the coach] and the principal actually go in and teach kids. It is not uncommon to see them in a classroom. They do a lot of tutoring."

In addition to the team approach, the director noted that the coach had successfully taught at the high school where she coaches for over seven years, obtaining her National Board certification during that time, and "earning the respect of her peers in multiple ways." The director believes an attitude shift occurred for the faculty after the instructional coach and principal arrived, although not immediately. "It took a little while, but everybody has seen the difference. It is the attitude of the teachers in the building that these children can learn." The director shared that previously teachers at the high school often doubted the ability and dedication of their students, but now collectively share an attitude of "all kids can learn." The coach has earned the teachers' respect, in the director's opinion, because she "knows what the resources are and has

provided those resources, and because of the support in general and knowing she's going to step in there with the students.”

The director shared that some of what the coach does could certainly be transferred to other schools. She said,

Its using the EVAAS data, looking at individual students, and basically tracking them. This can be done in any school, it's just a matter of are people willing to do it. The teachers have stepped up to the plate. They've learned some of these skills.

Perhaps most importantly in terms of modeling, the director noted, “the teachers have learned to look at data just as well as the administration. They now ask ‘how successful are we being at teaching these children what they need to learn?’”

The curriculum director for Jones County also explained her opinion of why the coaching has been successful at Jones Senior High School. She noted,

The fact that she is there [at the high school] all the time- I don't think it would work if she was split [between or among multiple high schools]. She's been pivotal. I think it's the person and not the position. You've got to hire the right person that fits with that staff. She's been there for many years.

In conclusion, research question three regarding the characteristics of a successful high school coaching program yielded myriad results that both supported the literature on best coaching practices and identified several practices rarely mentioned in coaching literature. The frequency of meetings between the coach and her principal was supported in findings from research question two. While the coach's use of data analysis and modeling are considered best practices in coaching (Knight, 2007; Taylor, 2008), her

tutoring and frequent classroom instruction present an unusual case. The coach and her district curriculum director attribute much of her success to both the typical and unique coaching practices to which she subscribes.

Summary of Findings

This study presented several noteworthy findings. Question one, regarding the nature of high school instructional coaching in North Carolina, illuminated the variety of implementation methods and processes followed across the state among the districts employing high school instructional coaches. Results for this question indicated many of the districts with coaches also utilize Professional Learning Communities in their high schools, and expect coaches to develop a relationship with teachers prior to working on transformation of teaching practices. While all eight geographic regions have districts employing coaches, the number of coaches and the employment status vary among them. Coach job descriptions differ markedly among the districts, with some coaches spending almost half their time on administrative tasks. The coaching activity reported with the highest median percentage was “helping teachers with lesson delivery,” with “helping teachers use assessment data” next. Coaches received a variety of professional development themselves, again ranging from extensive professional development in some districts to none in others.

While six districts demonstrated growth in terms of the change over time variable, one showed marked growth, and was thus selected for follow-up interviews with the high school instructional coach and curriculum director. In addition for question two, the variable coach and principal meeting frequency presented a statistically significant

relationship with the change over time variable. This finding indicates a possible relationship between the frequency of meetings between the high school instructional coach and principal and the student achievement scores at that school. Conversely, the lack of a relationship found with the other independent variables and change over time indicates these practices may not be related to student achievement.

Research question three findings indicated the instructional coach in Jones County provides both typical coaching services to the high school, and also several activities not traditionally utilized by instructional coaches. In particular, the coach's continued teaching of students at the high school, both in small group and occasional whole class instruction, is a novel approach to a full-time instructional coaching position.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter four presented analysis of data collected via a high school instructional coaching program survey, NC school district report card data, and interviews with two employees of a top-performing district. Chapter five presents a summary of the high school instructional coach study findings. In addition, strengths, limitations, and delimitations of the study; implications for research; recommendations; and conclusions are provided.

The purpose of this study was to investigate high school coaching practices in North Carolina schools and explore the relationship between coaching and student achievement. The research questions for this study were:

1. In what ways is instructional coaching implemented in North Carolina high schools?
2. What is the relationship between high school instructional coaching implementation and student achievement?
3. What are the characteristics of high school instructional coaching programs in districts with high student achievement growth?

High quality, job embedded professional development is the best way to improve teacher and student performance (Desimone, et al., 2002; Guskey, 2002; Wright, et al., 1997). Instructional coaching provides a nonevaluative means to support teachers through such activities as modeling, data analysis training, and observation and discussion (Black, 2007; Knight, 2009; Taylor, 2008). While high quality professional development for

teachers has been shown to improve instructional delivery, the ultimate goal is increased student learning and achievement (Black, 2007; Brown et al., 2007; Guskey, 2002).

While sustainable teacher support is well established as a valuable tool, few educational systems have the means, knowledge, or time to incorporate quality professional development without additional human resources. One shot professional development that involves bringing in a guru for a day, while widespread in use, rarely proves an effective means of supporting teacher development (Hord, 1994). Instructional coaching is designed to provide the scaffolding and continued resources necessary to move a school, both its teachers and students, toward greater performance (Knight, 2005).

Approximately one third of North Carolina high schools are implementing or have implemented instructional coaching as a means to improve student learning and develop teacher capacity. While a number of districts are utilizing coaching as a form of job embedded professional development, the actual practices and implementation of coaching vary widely among the North Carolina districts. Investing in a teacher whose responsibility is to support other teachers requires a district wide commitment, particularly when many stakeholders are frustrated with higher student to teacher ratios in the classroom and marked cuts in educational spending.

The instructional coaching survey was administered to all districts in North Carolina via email request. Districts that did not respond to the survey requests were called in order to determine existence of a high school instructional coaching program. Districts with high school instructional coaches that had been working in the coaching

capacity since at least the 2008-2009 school year were included in the data for question two analysis. Only one district was found to have a marked improvement in student EOC composite data, and that district's high school instructional coach and curriculum director were interviewed for question three.

Findings of the Study

Question One: Instructional Coaching Implementation

Question one was answered via the high school instructional coaching survey sent to a curriculum director in each of the 115 public school districts in North Carolina. Overall, 39 school districts in North Carolina employ or have employed at least one high school instructional coach since 2005. High school coaching programs differ widely among the North Carolina school districts in job description, expectations, and purpose. While over a third of NC districts have employed a high school instructional coach, few similarities exist among the districts beyond the hiring itself. One possible reason for the inconsistency lies in the lack of specific coach training or the following of a statewide coaching model. Because the choice to implement an instructional program is local, and only encouraged at the state level as one possibility for improving teacher quality (NCDPI, January 2009), this variety is no surprise. Coaches are often paid out of local school system funds, the scarcity of which explains why many districts were not initiating a coaching program, why some chose to discontinue an existing coaching program, and why some started as late as 2009 in hiring high school instructional coaches.

In addition to a lack of any consistent training or start date, districts varied widely in the number of schools each coach served and the amount of time their high school

coaches spent on coaching in relation to other job responsibilities. At least part of this variability may stem from financial issues; for example, hiring a high school coach for each high school in a district with eight high schools is a significant financial endeavor, much more so than hiring one coach to serve all high schools. Nonetheless, research indicates that relationship development and consistent interaction with faculty make the greatest gains when coaches are working with teachers (Black, 2007; Knight, 2005; Ross, 1992).

District responses were somewhat less varied regarding whether coaches focused on supporting a particular content area in their schools. While most districts either noted their coaches did not focus on any particular content area or supported all the core content areas, some described the coach as focused on supporting a single area such as literacy, math, English, or exceptional children. Literacy coaching, in which the coach supports all content areas in incorporation of reading and writing strategies, actually focuses on all content areas, but best practices are limited to literacy development. Often the choice in content focus stems from district level data analysis regarding areas of greatest need within the system. Quite possibly coaches hired to support limited content areas or focus on only one “type” of student have less fidelity to a typical instructional coaching philosophy. The decision to focus on specific content could be related to potential sanctions from NCDPI regarding student performance in reading or math, in failure to make Adequate Yearly Progress (AYP), or in failure to make growth with certain subgroups or in either math or reading.

While only a few districts noted the adoption of a reform model for their coaching focus, instead describing initiatives that individual schools followed, research indicates the need for district level focus for the coaches' work to ensure success (Poglinco & Bach, 2004; Walker, 2006). The decision to support a reform model for the entire district is often financial in terms of providing training, purchasing materials, and convincing stakeholders that the investment will pay off with student achievement gains.

Incorporating a reform model along with instructional coaching makes for a more difficult assessment of the role of either in their effect on student performance and learning, or on improved teacher quality. Quite possibly the lack of a district wide reform model is also related to reduction in force at the central office level for most districts.

Whether due to lack of curriculum directors or to those curriculum directors incorporating multiple additional duties into their job description, rarely is time available to research and investigate a program to the level necessary for district adoption.

The principal plays a critical role in potential success for the instructional coach (Johnson & Donaldson, 2007; Neufeld & Roper, 2003; Steiner & Kowal, 2007). Coaches are regularly charged with supporting school goals and following the principal's lead in curricular issues (Jorissen, et al., 2008; Kostin & Haeger, 2006). Responses regarding expected frequency of meetings between the instructional coach and principal ranged from never to daily. Possibly the actual principals and coaches would have responded differently from the curriculum director who answered the survey question, but the intent was to determine the district level expectation regarding these meetings. In addition, the intent of the survey was to determine district level expectations for the high school

instructional coaching program. It would be interesting to know if principals were trained in how to best utilize their instructional coach as a resource in any of these districts, and if so, did that training impact the frequency of meetings between the two. An additional area of interest would be the nature of the conversations between the principal and coach, and how the conversations varied depending on whether confidentiality was expected or not between coach and teachers. While research demonstrates the need for principal and coach to frequently discuss the coach's activities and support work (Killion, 2007; Knight, 2007) often between the principal's likely overwhelming schedule and a possible lack of training on how to implement this relationship, these quality conversations do not always happen.

Relationship building with teachers is a critical component of instructional coaching success (Buly et al., 2006; Ertmer, et al., 2005; Knight, 2004; Shanklin, 2007) and almost all responding districts indicated an expectation that relationship building come before actual curricular work with teachers. In some situations, the coach is a previous faculty member from the same school, in which case relationships and hopefully respect are already well established. When the coach is a newcomer to the school, developing a collegial atmosphere of trust and respect often comes before any professional development training. Perhaps it is this lengthy process of relationship development that often thwarts the efforts to instill a long-term, successful coaching program in a district. For those who wish for immediate results in student achievement growth, waiting two years for trust establishment is a difficult plight. In addition to establishing relationships, district educational leaders often struggle with confidentiality

between coaches and teachers. Perhaps the most controversial aspect of coaching, confidentiality goes a long way in promoting the relationship necessary for adults to feel safe in changing their teaching practice. Districts were split in their response to whether they expected confidentiality or not for their coaches, and again, it would be interesting to note the actual practice at the school level, and how nonconfidential coaches develop trust.

Research shows one of the best ways to encourage success for instructional coaches is to provide them professional development both in the initiatives they support and in skills needed as coaches (Brady, 2007; Feger, Woleck, & Hickman, 2004; Ingersoll, 2007; Smith, 2008). Almost all survey respondents noted some professional development was provided to their coaches, ranging from training in adult learning theory to data analysis, and likely the training was selected based on the district goals for its coaching program. While selecting the right person for the job is critical when hiring a coach, providing the tools coaches will need to succeed in working with teachers is equally valuable (Black, 2007; Dempsey, 2007; Knight, 2005). In noting the professional development coaches received in the district, no explanation on length or quality of that training was requested. Just as we know the power of instructional coaching lies its ability to access sustained, job embedded support (Brady, 2007; Hord, 1994; Knight, 2005; Poglinco & Bach, 2004), so too do coaches need ongoing training. Quite possibly the size of the district makes a difference in terms of professional development and the opportunity for the establishment of coach Professional Learning Communities. Ongoing support and sharing is more likely to occur in a district with multiple coaches for each

grade span than if the high school coach is working in isolation. When only one high school coach is employed in a district, it is probable that coach must seek professional development alone, either from internet resources or books.

A variety of school level initiatives were shared in survey responses, indicating coaches support different plans according to the individual school. If a coach serves multiple high schools, this becomes an impressive feat in terms of code switching to meet the expectations of each school. For many, supporting the principal regardless of the initiative is foremost in expectations (Steiner & Kowal, 2007). In addition, school improvement plans often include the coach as the facilitator of specific initiatives (Kostin & Haeger, 2006). Initiatives included in the survey ranged from the frequently mentioned Professional Learning Communities and data analysis to the individual mention of programs such as Read 180 and Mindspring. While concepts such as Professional Learning Communities are defined as possible without support beyond teachers themselves (DuFour, DuFour, & Eaker, 2008), rarely do administrators or teachers have time to research, train, and implement them on their own. Coaches supporting Professional Learning Communities or data analysis often do much of the data study and preparation for community sharing on their own prior to meeting with teacher groups. While this preparation may not follow the optimal path described by the DuFours and others, it does encourage greater fidelity in implementation.

In addition to individual survey questions, respondents were asked to complete a chart of typical coaching activities in terms of the amount of time their coaches were expected to spend on the activities. Respondents indicated the majority of coaching time

was spent on data analysis, modeling, observation and discussion, and lesson planning and analysis. These responses are similar to best practices noted by Jim Knight (2004, 2009) for instructional coaching. Much of the variation beyond these top responses related to individual district job description for the instructional coach. For instance, if a coach also serves as part-time administrator, then the response for time on “other administrative responsibilities” tended to be high.

Few respondents indicated time spent tutoring individual students or administering assessments, and none responded to expecting coaches to serve as substitute teachers. Ironically, while these three tasks may go a long way in facilitating collegiality and support from teachers, they are not considered best practices for coaches (Knight, 2004; Regge & Soine, 2008; Russo, 2004; Taylor, 2008). The low amount of time spent on administrative responsibilities, administering assessments, and substitute teaching may indicate that district leaders are learning about best coaching practices, and focusing on how best to improve overall teacher quality and student achievement. It is also possible that time spent on the various activities evolves during the years of coaching implementation, and that the most powerful practices take several years to develop into reality. For instance, while the expectation may be that frequent lesson modeling and planning takes place between teachers and coach, factors such as prior experience at the school and voluntary versus compulsory use of the coach will alter the actual implementation of these practices (Cornett & Knight, 2009; Knight, 2004; Reddell, 2004; Taylor, 2008). In addition, the principal’s expectations and presentation of the coach’s

role to the faculty can greatly influence how frequent, widespread, and varied the coaching practices are.

Question Two: Relationship Between Instructional Coaching and Student Achievement

After survey results were analyzed for descriptive details, 26 districts were selected from the 39 total districts that employ or have employed high school instructional coaches since 2005 to address question two. Districts were selected for question two analysis based on the following criteria: the coaching program began by the 2008-2009 school year, the coaching program was not discontinued, and the district employed at least one high school instructional coach. Of the 39 districts, 26 fit these criteria. The EOC composite score data found on NCDPI's website under school report card data were used in analysis for determining pre versus post coaching increase in proficiency rates. Data analysis revealed six districts demonstrated at least some increase between pre coaching and post coaching in proficiency rates when compared to the state composite EOC test scores.

Only six of the 26 districts demonstrated any increase in relation to the state average, however, the analysis did not take into account any differences based on number of years of coaching implementation or whether other factors may have contributed to 2008-2009 being an unusual year (positive or negative) for the district. Coaching implementation start date varied among the six districts. The six districts showed little similarity in survey responses regarding coaching implementation within their district.

In addition, districts with one high school and one high school instructional coach should perhaps be viewed differently than districts with multiple high schools or multiple

coaches. More specifically, if a district has one high school and one high school coach, and that high school demonstrated an increased proficiency rate over the coaching years, then we can presume that the coach and the practices incorporated at that school have a possible role in facilitating that growth. While several of the districts demonstrating growth do have more than one high school, it is possible that two different structures are being evaluated: district versus school level implementation of coaching.

Descriptive and inferential statistics were used to explore possible relationships between student achievement and coaching practices. Of the six variables developed based on research based best practices and survey components, only one demonstrated a possible relationship, the frequency of principal and coach meetings. The possible relationship between frequency of principal and coach meetings and student achievement is supported in research encouraging conversation and planning between the two (Johnson & Donaldson, 2007; Jorissen, et al., 2008; Killion, 2007; King et al., 2004; Knight, 2007; Kostin & Haeger, 2006; Neufeld & Roper, 2003; Steiner & Kowal, 2007). Key to the success of the principal and coach relationship is utilizing the coach as a teacher leader, as a support for the principal's role as instructional leader, and as a resource for the principal as well as teachers (Cameron, 2005; Harrison & Killion, 2007; Makibbin & Sprague, 1993; Regge & Soine, 2008). The principal and coach meeting variable divided survey responses into two categories: (a) meeting once a week or more or (b) meeting two to three times a month or less. As with other coaching activities and best practices, it is much easier to meet frequently with a principal in whose school the coach works every day, as opposed to one day a week or even less at each school, as is

often the case. Again, this becomes a district implementation issue in terms of choice and dedicated finances to place a coach at each high school versus one coach for multiple schools.

While none of the null hypotheses for the other five variables could be rejected, it is important to note that each of those variables incorporated sound, research based best coaching practices. The typical coaching activities variable is based on five supports often provided by instructional coaches: (a) helping teachers analyze lesson, (b) helping teachers use assessment data, (c) helping teachers plan lessons, (d) observing and conferencing with teachers and (e) modeling lessons. All of these activities are frequently mentioned in instructional coaching literature as critical practices for success (Cornett & Knight, 2009; Ertmer, et al., 2005; Knight, 2005; Knight, 2009; Taylor, 2008). Time spent on typical coaching activities varies widely across the state, and minimal literature is available on optimal time for the collective activities.

The coaching relationships variable consisted of a response from districts regarding confidentiality. While a relationship between expectations of confidentiality with teacher and coach and student achievement was not established, this trust is a basic assumption in instructional coaching (Borman & Feger, 2006; Cameron, 2005; Knight, 2005; Poglinco & Bach, 2004; Shanklin, 2007). The survey was directed to a district curriculum director, and not the coaches themselves; it is thus possible the confidentiality response would be quite different if asked of coaches. The Professional Learning Communities variable comprises a more recent addition to coaching responsibilities, with the leading of job embedded data analysis only now incorporated into most schools'

repertoire of professional development. It is possible that both variability in practice and novelty of PLCs contributed to the absence of a relationship found between PLCs and student achievement.

While serving one school or several depends much on district funding, Knight (2005, 2009) strongly recommends the instructional coach work at one school as a full-time support for teachers. While knowledge that one coach per school might be best for effecting change and growth, the financial reality makes this practice unlikely for most districts. Professional development for coaches is frequently noted in coaching literature as an expectation for their success (Ingersoll, 2007; Knight, 2005, 2009; Smith, 2008). In order to be effective, professional development should be high quality, ongoing, and job embedded (Champion, 2003; Guskey, 2000, 2002; Hord, 1994; Wei, et al., 2009). The coach professional development variable was based on information requested from districts regarding the professional development their coaches received, but did not address length or quality of the professional development. In Reddell's (2004) study of instructional coaches in Texas, coach professional development was cited as a reason for student academic growth, thus it is possible that a relationship between coach training and increase in proficiency rates was not found due to lack of quality, research based best practices in professional development delivery for the coaches.

It is probable that wide variability in implementation may have affected the outcomes of the inferential statistics; specifically in terms of possible discrepancy between district expectations and actual school level practice. As mentioned with professional development for coaches, districts were asked about the program level

expectations regarding the existence of various activities and practices, but not the quality or evaluation of the implementation or success of any of them.

Question Three: Characteristics of a Successful Instructional Coach Program

After analyzing quantitative data from questions one and two, the district demonstrating the greatest gains in proficiency rates in relation to state average scores was selected for qualitative analysis via an interview with the high school instructional coach and the curriculum director. This district was selected both because of significant growth through the 2008-2009 school year and a marked gain in EOC composite score for the high school in 2009-2010.

Jones Senior High School, the only high school in the district, is located in rural Southeastern North Carolina. The county has a high rate of poverty, and several years ago was designated a turnaround school with accompanying mandates regarding the imperative need for improvement in student achievement. The instructional coach, hired the summer after that spring designation, was a former science teacher for seven years at the high school. The coach essentially developed her own plan for professional development, incorporating previous experiences, online information and support, and on-the-job training.

Perhaps because the coach was largely responsible for her own preparation and training, the coach incorporated several practices not often found in coaching best practices literature. In particular, this coach tutors a group of students four days a week for the entire school year, teaches a full day six weeks each year in preparing struggling students for their EOC tests, and tutors after school for EOC test preparation four weeks

each school year, all in addition to her regular coaching duties. Quite surprisingly, this coach still follows best coaching practices in addition to her multiple hours logged with teaching high school students. The coach devotes a significant amount of time each day to data interpretation and teacher training on data analysis. Data analysis, often incorporated into school professional development via Professional Learning Communities, are cited as an important tool in increasing student learning (DuFour, DuFour, & Eaker, 2008; Feger, et al., 2004; Kostin & Haeger, 2006). The district curriculum director attributes much of the high school's success to the coach's training of the faculty in data use. Both the coach and curriculum director noted the coach holds daily discussions with teachers about data analysis.

In addition, the instructional coach facilitates the daily tutoring program, models lessons and best practices, and plans lessons and units with teachers. While many coaches find they must establish relationships prior to working with teachers, the coach credits much of her success in improving teacher instructional delivery to having an already established identity at the school and a trusting relationship with the teachers. Trust is well documented as a critical aspect of instructional coaching (Cameron, 2005; Harrison & Killion, 2007; Makibbin & Sprague, 1993; Taylor, 2008). The Jones High coach was able to circumvent much of the relationship building aspect of her coaching job due to preestablished conditions. The coach also believes the respect she earned was due to her teaching and working with the school's neediest students, and operating as part of the administrative team with the assistant principal and principal. While her work with the students is somewhat unorthodox, her work with the principal is an established

expectation for successful coaching (Johnson & Donaldson, 2007; Kostin & Haeger, 2006; Neufeld & Roper, 2003; Steiner & Kowal, 2007). The coach's collaboration and relationship with the principal established a clear sense of team for the entire faculty.

Rather than following a prescribed program or specific initiatives, the coach was charged with improving student achievement across all content areas as she had with her own students in science. The coach has mentored beginning teachers extensively, and is pleased with their growth over the last few years. She works in a nonevaluative capacity yet feels her voice is heard by the leadership team and her fellow teachers. One question that begs an answer is whether this coach's varied and robust schedule could be mimicked consistently by other high school instructional coaches. In fact, the curriculum director attributes much of the success of the instructional coach in Jones County to the coach's work as a full-time instructional coach at their one high school. Coaching literature encourages the one coach per school concept, although many districts are unable to afford the endeavor (Knight, 2006). In Ross's 1992 study of Ontario coaches, findings also indicated the more time coaches spent with teachers, the better their students performed. Perhaps her role as coach serving one high school makes the difference since she can focus on a school she knows well, and can better and more efficiently meet the needs of all stakeholders: administration, students, teachers, and parents.

Nonetheless, the curriculum director believes much of the coach's success derives from personality, and noted that the coach's drive, dedication, and knowledge of the students facilitated much of the growth and success at the high school. As noted in

Woodruff's 2007 checklist of coach and teacher interaction, the Jones High coach was able to arrive at activities towards the top of the scale (strategic integration, refocusing/adaptation) much faster than would a coach who needed to establish relationships and trust prior to curricular development. It is important to note that as a turnaround school, Jones Senior High received additional support and attention beyond the instructional coach. In addition, a new principal was hired at the same time the instructional coach started. Also, the instructional coach spent a significant amount of time directly instructing students, which may also have affected EOC scores. It is also possible that changes in teacher turnover or cohort effects may have influenced 2009-2010 test scores as well.

Strengths, Limitations, and Delimitations of the Study

Several strengths were present in this study. First, the study is one of the few actively seeking to determine if a relationship exists between instructional coaching and student achievement. While multiple instructional coaching studies have been conducted regarding qualitative analysis of best coaching practices (Brady, 2007; Ertmer, et al., 2005; Knight, 2007; Reddell, 2004) rarely does a study venture into the murky waters of linking student achievement and coaching practices. While a causal link between coaching and student achievement was not in the scope of this study, a relationship was found between the frequency of coach and principal meetings and increased proficiency rates as defined by EOC composite scores. Coach and principals expected to weekly or more demonstrated more growth in change over time (post minus pre coaching deviation) than those who met less frequently.

An additional strength of this study is its exploration of instructional coaching in North Carolina. While some states have followed a statewide initiative regarding instructional coaching implementation, North Carolina, while strongly recommending coaching as a practice likely to improve teacher quality and student achievement, has no one consistent or pervasive coaching model. Due to the variety in methodology, implementation date, and implementation in general, this study was able to both gather information on the multiple practices occurring across the state in instructional coaching and delve into possible practices most likely to impact student achievement.

Another strength of this study was the comprehensive observation of all public school districts in North Carolina in terms of high school instructional coaching, since a gap in the literature existed regarding coaching at the high school level. The researcher's choice to contact all districts to determine whether a high school instructional coaching program existed in the district, including phone contact for those districts that did not respond to the internet survey, proved beneficial in terms of a complete and full picture of high school instructional coaching in North Carolina. While confusion does exist regarding terminology in the job title and whether coaches are locally employed by the district or hired by the state to work with schools deemed critical by NCDPI, the survey was able to include at least some data on all districts that have employed an instructional coach since 2005.

An additional strength lies in the mixed-methods design of the study. Rather than merely demonstrating that some districts did show at least minimal growth following the inception of their high school instructional coach program, or after analysis revealed that

the principal and coach meeting frequency posed a possible relationship to increase in EOC proficiency rates, this study sought to further analyze best practices of the district demonstrating the largest proficiency increase. Soliciting specific, detailed information on daily practice, goals and guidelines, and overall philosophy of a successful program could potentially aid other districts in their quests to produce similar results with their coaching program. Another limitation involves the difference in length of time of coaching implementation. Districts in the research question two subgroup had anywhere between one and five years of coaching implementation. In addition, student learning was defined in this study as EOC composite score results. Actual measurement of student learning was beyond the bounds of this study.

A potential limitation from the study involves the survey instrument. The coaching program specifics were self-reported from a district level representative, which indicates a possible instrument limitation with survey data. Essentially, potential differences could exist between what districts intend for coaches and actual coaching practice. In addition, funding for continued instructional coaching programs may prove a study limitation, due to widespread budgetary constraints and lack of quantitative data. Because the decision in North Carolina to hire instructional coaches is generally made at the local level, and a quantitative relationship between coaching and student achievement is difficult to establish, often these coaching programs, if even begun, are one of the first programs eliminated in difficult times. An additional limitation for this study includes the self-selected survey results for answering survey question one. While nonresponding districts were contacted by phone to determine if a coaching program existed, data for

these phone conversations were limited mostly to start date of the coaching program and number of schools served by each coach.

A delimitation for this study involved selection of the district for interview in the qualitative portion of the study. While another district slightly surpassed the chosen district in the change over time variable analysis, the selected district produced a higher composite rating for the 2009-2010 school year and was thus determined the best representative for evaluating best coaching practices in a North Carolina high school.

An additional delimitation included the decision to focus solely on high school instructional coaches in North Carolina, thus narrowing the scope of the study to high school and North Carolina, both of which could limit generalizability. This study focused only on high school coaches, so programs involving other grade span coaches and their relationship to student achievement or proficiency rates were beyond the scope of this study. Also, this study sought to determine if a relationship existed between high school instructional coaching and student achievement, but not causation. While quantitative analysis sought to determine a relationship between coaching and student achievement, multiple factors may have affected the findings. Other determiners of student success such as graduation rate, number of courses passed, or attendance rate were not included as factors of student achievement in this study.

Due to the focus of this study on district level implementation and student achievement results as indicated by proficiency results, individual teacher responses were not sought in terms of teacher growth, efficacy, or reactions to the coaching program, thus producing an additional study delimitation. Teacher perspective on instructional

coaching is well established in prior research (Brady, 2007; Ertmer, et al., 2005; Knight, 2006; Neufeld & Roper, 2003).

Implications for Research

One particular implication for further research involves the need to conduct a similar study regarding elementary and middle grade instructional coaches in North Carolina. While literacy coaching has been explored (Buly, et al., 2006; Killion, 1999; Lockwood, McCombs, & Marsh, 2010; Sturtevant, 2004), the statewide middle school literacy coach initiative was discontinued in North Carolina in 2008, leaving a gap now occasionally filled by instructional coaches. Elementary coaches are utilized more extensively in North Carolina than high school coaches, and their unique challenges and application would possibly provide markedly different results from this study of high school coaches.

An additional implication for research includes the exploration of all the North Carolina coaching districts that demonstrated growth in relation to state average composite scores. It was beyond the scope of this study to interview coaches or district curriculum directors from all six of these districts, but a future study could determine commonalities in the high school coaching practices of the districts exhibiting gains in proficiency rates. Also, further study of the practices of those districts demonstrating no gains, while possibly socially difficult, could provide insightful information on methodology that provides the least gain.

On a much broader scale, this research focused solely on high school instructional coaching in North Carolina. While coaching practices vary widely in this state, and

certainly across the country, data could prove helpful that explore best coaching practices in relation to student achievement data nationwide, particularly if disaggregated into local or state developed coaching programs.

Recommendations for Practice

In interviewing the instructional coach for the district with the largest increase in student proficiency rates, multiple practices not frequently mentioned in published coaching best practices literature came to light. It is recommended that districts not demonstrating the gains they would like and who employ high school instructional coaches explore these practices and reevaluate the parameters of the instructional coach job description. A note of caution must accompany this suggestion. Principals are encouraged to recognize that the role of instructional coach is to increase student learning, and thus coach time is best spent working with that focus in mind. While research on instructional coaching does not include tutoring or working with individual students as best practice (Knight 2005, 2009; Taylor, 2008), the interviewed coach noted that her teaching was integral in gaining respect from colleagues, in her ability to model best practices, and in promoting an understanding of current and relevant professional development based on the schools' specific students. In addition, the administrative team aspect of the selected district high school should be explored as a best practice. The coach credited her role as part of the team as a significant contributor to increased proficiency rates at the high school. Meeting regularly to discuss curricular needs and issues kept the leadership team focused on school instructional needs. Including the coach in school improvement plan development and school leadership decisions encourages support and

understanding of the school goals, and elicits a cohesive team approach to student learning and teacher quality.

An additional recommendation for practice involves professional development for principals regarding their use of and relationship with instructional coaches. Too often we assume principals will understand how to best utilize the skills of the instructional coach and promote the coach's work to the faculty, even though they likely have received no training in how to do so.

When a one-to-one initiative for coaches and schools is not possible, this research provides possible ideas for practices that produce gains in student learning. For example, coaches could direct their schools in implementation of data analysis or Professional Learning Communities. In addition to potentially incorporating new practices or eliminating ineffective ones, this research indicates a need to explore the quality of everything from professional development for coaches to implementation of school level initiatives. For instance, 16 of the districts responding to the question on school level initiatives noted Professional Learning Communities as a tool they had incorporated. If instructional coaches are charged with implementing Professional Learning Communities, then to what extent are they trained in initiating them, in supporting faculty in their use, or in providing a bridge to school leadership regarding related issues?

A further recommendation involves training for coaches, teachers, and administrators in data analysis. The instructional coach interviewed noted she spent extensive time every week interpreting individual teacher and student data. She makes recommendations for further support, models and conferences as needed, and provides

training and support individually and to departments in data analysis and action results. The coach in Jones County focuses daily on data analysis and reflection, and on supporting each student towards academic growth. This level of data study requires extensive time and strong, trusting relationships between the coach and the faculty, as noted by the coach interviewed.

Conclusions

High school coaching practices vary widely across North Carolina for those districts employing instructional coaches. While best coaching practices are well established (Knight, 2005, 2009; Poglinco & Bach, 2004; Taylor, 2008), the ability to adapt those practices to individual districts depends on both human and financial factors. Even when the expectation of certain practices is established at the district level, much is left to individual coach interpretation and additional stakeholder involvement at the school level. Perhaps the coach's actual job description involves focusing on the needs of the individual school, and then utilizing the coach's skills and talents to support school goals, rather than a prescribed set of skills all coaches must follow for optimal performance. More specifically, relationship building, whether with teachers or administrators, is widely considered coaching best practice (Barr, et al., 2003; Brady, 2007; Ingersoll, 2007). The practice of developing and nurturing these relationships for increasing teacher quality and student learning may look very different from one school or district to the next. This variety in atmosphere and culture at each school explains part of the difficulty for coaches working at more than one high school. Code switching to

meet the demands of varied cultures and academic needs makes for a difficult and perhaps daunting endeavor.

While not all districts of the 26 evaluated demonstrated growth in relation to state average composite scores after implementing an instructional coach program, the true degree of difference the coaches made can not be determined in this study. Individual districts are encouraged to evaluate their coaching program in terms of goals met, training needed, and stakeholder input on what is successful and what is not. The Jones High coach shared that many teachers want to see someone who appears to struggle with the same issues and who work just as hard as they do. If the instructional coach is visible, driven, and involved in moving the school forward, the coaching program will likely be more widely accepted across the district.

In this study, the frequency of principal and coach meetings demonstrated a relationship to gains in proficiency rates on EOC composite scores. This finding is similar to interview findings in terms of the importance of shared goals, focused agenda, and an understanding of individualized needs of the students in each school. Also in collaboration with research question three findings, if the relationship between principal and coach is established and designed to work towards a common goal, the faculty sees this collaboration as a positive indication that a plan is in place and all are collaborating collectively to ensure students are learning.

Further research should focus on exploration of best coaching practices in all NC districts demonstrating student achievement gains. This research can not determine whether the extensive time the interviewed coach spends teaching students is an anomaly

or a practice followed by other coaches in successful programs as well. In addition, the Jones Senior High coach mentioned frequently the school and district focus on data analysis, and that, as a classroom teacher, she held her students' achievement data, both formal and informal, to that same level of scrutiny. Perhaps it is this prior experience with data interpretation that enabled the coach to transfer her knowledge to a school wide endeavor. If so, then data analysis might be a critical component in required coach professional development.

With the exception of coaching districts that did not respond to the online survey, I was able to determine the extent and nature of high school coaching in North Carolina school districts. In addition, data analysis revealed a relationship between the frequency of principal and coach meetings and increased proficiency rates on EOC composite scores. Through the interview portion of this research, I was able to determine practices utilized in a successful instructional coaching program.

Funding for instructional coaches is a critical issue, and unfortunately, many stakeholders expect to see significant student achievement growth quickly in order to support the continuation of a coaching program in their district. If considering implementation of a coaching program, the same holds true: if stakeholders are not able to locate North Carolina examples of successful coaching programs in terms of student achievement gains, they will not spend precious financial resources initiating the program. This research indicates high school instructional coaches may play a role in increasing proficiency rates on high school EOC composite scores, and I strongly encourage further study on best coaching practices that support this potential growth.

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Appendix A

Thomas Guskey's Five Levels of Professional Development Evaluation

Level 1: Participant Reaction

- Purpose: to gauge the participants' reactions about information and basic human needs
- Technique: usually a questionnaire
- Key questions: Was your time well spent? Was the presenter knowledgeable?

Level 2: Participant Learning

- Purpose: Examine participants' level of attained learning
- Technique: test, simulation, personal reflection, full-scale demonstration
- Key question: Did participants learn what was intended?

Level 3: Organizational Support and Learning

- Purpose: Analyze organizational support for skills gained in staff development.
- Technique: minutes of district meetings, questionnaires, structured interviews or unobtrusive observations
- Key questions: Were problems addressed quickly and efficiently? Were sufficient resources made available, including time for reflection?

Level 4: Participant Use of New Knowledge and Skills

- Purpose: determine whether participants are using what they learned and using it well
- Technique: questionnaires, structured interviews, oral or written personal reflections, examination of journals or portfolios, or direct observation
- Key question: Are participants implementing their skills and to what degree?

Level 5: Student Learning Outcomes

- Purpose: Analyze the correlating student learning objectives.
- Technique: classroom grades, tests, direct observation
- Key question: Did students show improvement in academic, behavior or other areas?

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Appendix B

Instructional Coaching Program Survey

Online Survey for Assistant Superintendent/Curriculum Director in each of the 115 school districts in North Carolina

Hello. My name is Karen Sumner. I am a doctoral student at Western Carolina University, and am requesting your participation in a survey about high school instructional coaches in North Carolina. I appreciate your help.

This survey is about instructional coaching in North Carolina high schools. If your district employs instructional coaches, you may use the term **instructional coach, instructional facilitator, literacy coach, cognitive coach, or another term**. Please use the following definition to guide your decision about whether your district employs instructional coaches:

Instructional coaches support district initiatives with the goal of improving student learning (Knight, 2008).

Coaching is

- **a form of instructional leadership**
- **nonsupervisory/nonevaluative**
- **involves individualized guidance and support**
- **intended to promote teacher learning**
- **an on site professional developer**
- **at least half-time employment as a coach**
- **may or may not be helping with a district reform initiative**

1. Please select your school district:
2. Has your school district at any time in the last three years employed at least one high school instructional coach (grades 9-12)?
3. In which of the following school years did your district employ high school instructional coaches? Please check all that apply.
 - 2005-06
 - 2006-07
 - 2007-08
 - 2008-09
 - 2009-10
4. At which high school(s) are instructional coaches employed in your district? (Please list all and separate with a comma or note ALL HIGH SCHOOLS IN DISTRICT.)
5. Do your instructional coaches work at more than one high school?
 - Yes (Please indicate number of schools served by each coach.)
 - No
6. Which best describes the role of your high school instructional coaches? (Please check all that apply.)

- Full-time coach
 - Part-time coach with teaching responsibilities
 - Part-time coach with administrative responsibilities
 - Part-time coach with no other responsibilities
7. Who supervises the instructional coaches in your district? (Please check all that apply.)
- Curriculum Director
 - Assistant or Associate Superintendent
 - Superintendent
 - Principal
 - Secondary Director
 - Other
8. Do your high school instructional coaches have a specific content focus?
- Yes
 - No
- Please select the content focus....
- English (Please specify high schools in which this is a focus or note ALL)
 - Math (please specify high schools in which this is a focus or note ALL)
 - Science (please specify high schools in which this is a focus or note ALL)
 - Social Studies (please specify high schools in which this is a focus or note ALL)
 - Literacy (please specify high schools in which this is a focus or note ALL)
 - Career and Technical Education (please specify high schools in which this is a focus or note ALL)
 - English as a Second Language (please specify high schools in which this is a focus or note ALL)
 - Exceptional Children (please specify high schools in which this is a focus or note ALL)
 - Technology (please specify high schools in which this is a focus or note ALL)
9. Please list any school level initiatives for which your coach(es) provide support and/or instruction (for example, Professional Learning Communities, balanced literacy, thinking maps, learning focused strategies, etc.).
10. Has your district adopted a reform model in which the high school coaches base their activities?

- Yes (Name of reform)
 No
11. How often are the coaches and principals expected to meet in your district?
- Never
 Less than Once a Month
 Once a Month
 2-3 Times a Month
 Once a Week
 2-4 Times a Week
 Daily
12. Is there an expectation that the coach/teacher relationships are confidential in your district?
- Yes
 No
13. What professional development have your coaches received specifically for their coaching role in the past two years? Please check all that apply.
- Adult learning theory
 Best practices
 Data analysis
 Presenting professional development
 Other (please list)
14. Is there an expectation of relationship building between coaches and teachers prior to initiating actual "coaching" in a school?
- Yes
 No
15. On the following chart are services coaches often provide in schools. The list may include activities that your coaches do not do. Please indicate for each activity the amount of time coaches spend on the activities in a typical month. Please note the coaching activities will need to equal 100%.
- Help teachers analyze the content, strategy, and rigor of their lessons.
 - Help teachers use assessment data to improve instruction.
 - Help order materials and books for classrooms.
 - Help teachers plan their lessons.
 - Observe classroom teaching and engage in pre and post conferencing with teachers.

- Deliver school-wide professional development.
- Model lessons and/or particular instructional techniques in the classroom.
- Plan and present a shared lesson.
- Help teachers implement a particular curriculum.
- Administer assessments (e.g. benchmark tests, EOCs, etc.)
- Facilitate department level planning.
- Provide tutoring to individual students.
- Provide assistance as a substitute teacher.
- Meet with other coaches or curriculum specialists for planning purposes.
- Administrative responsibilities.
- Other (Please describe)

Total

16. In early fall, I plan to follow up on this survey with a few phone or face to face interviews. The interviews will last about 60 minutes, and the goal will be to determine the characteristics of coaching programs in districts with high student achievement growth. If requested, are you willing to participate in a follow up interview? If yes, please include your contact information for summer/early fall (your name, phone number and email address) below:

Name

Email Address

Phone Number

Appendix C

Survey to Expert Panel

To: Survey expert panel
Date: May 18, 2010
Subject: Survey Analysis

I am emailing to ask you to review a survey I have prepared to use for my dissertation. I plan to ask a curriculum director in each North Carolina school district to complete the survey. I wish to determine the extent to which school districts are utilizing high school instructional coaches.

I would like you to review the survey and use the attached document titled "Survey Feedback Form." Please record your feedback on this form and email back to me at *****. Please return by this May 25th. Your support in completing this survey will help with knowing in what ways and to what extent instructional coaching programs are used throughout the state.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser) to begin the survey.

Survey Link: http://wcu.qualtrics.com/SE?SID=SV_8AqqFneeMUhBPx2&SVID

Thank you in advance for your time and support.

Sincerely,

Karen Sumner
Regional Education Facilitator
NCDPI

Expert Panel
Survey Feedback Form

The purpose of this study is threefold: first to determine the extent to which instructional coaching is being utilized in North Carolina high schools, second to evaluate the relationship between instructional coaching implementation and student achievement, and third to further explore the characteristics of coaching programs associated with strong student achievement. While multiple coaching models exist in United States schools, all have the goal of improving instruction and thus student learning (Poglinco, S.M., & Bach, A.J., 2004). This study will examine and evaluate the impact of instructional coaches on student achievement in North Carolina. **For the purpose of your support as part of an expert panel reviewing the survey, the first of my three research questions applies to the survey.**

Research Questions:

The following questions will be addressed in this study:

1. In what ways is instructional coaching implemented in North Carolina high schools?
2. What is the relationship between high school instructional coaching implementation and student achievement?
3. What are the characteristics of high school instructional coaching programs in districts with high student achievement growth?

Expert Panel Questions Post Survey Completion

1. Does the survey measure the concepts as outlined above in the first research question? Please describe.

2. Do any of the survey questions contain technical problems? Please describe.

3. Are any of the survey questions difficult to understand? Please describe.

4. Should the order of the questions be altered? Please describe.

5. Could any of the questions be clearer? Please describe.

6. Are there questions that should have been asked but were not? Please describe.

7. Please describe any further advice regarding this survey:

Thank you for taking time to help me with the design of this survey. I truly appreciate your help.

Karen Sumner

Appendix D

Survey to Pilot Group

To: Pilot Group for Survey
Date: May 26, 2010
Subject: Survey

Your help is needed in a study I am conducting on instructional coaching in North Carolina. I would appreciate your help in completing a survey regarding instructional coach programs in school districts.

I am emailing to ask for your participation in a pilot group that will test the survey instrument I have developed. Your responses to the survey will help in determining the survey's reliability. I am asking that you complete the survey and then provide your advice using the attached "Survey Feedback Form". I also ask that you retake the survey in two weeks.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser).

Survey Link: http://wcu.qualtrics.com/SE?SID=SV_8AqqFneeMUhBPx2&SVID

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses. Should you have any comments or questions, please contact me at ***** or *****.

Thank you for your help. Your time is truly appreciated.

Karen Sumner
Regional Education Facilitator
NCDPI

Feedback Form for Pilot Study Group

1. Did you experience any problems in accessing the survey? Please describe.
2. Were any of the questions difficult to understand? Please describe.
3. Were any terms used in the survey with which you were not familiar? Please describe.
4. Were there any technical problems in the survey? Please describe.
5. Are there questions that should have been asked but were not? Please describe.
6. If you did not respond to a survey question, please explain why.
7. Did you need additional answer options for any of the questions? Please describe.
8. Do you have any further advice regarding this survey? Please describe.

Appendix E
Letter to District Curriculum Director

To: Curriculum Director
Date: June 27, 2010
Subject: Instructional Coaching Survey

I am emailing to ask for your participation in a survey that I am conducting regarding high school instructional coaching in North Carolina. I am seeking information on the extent to which instructional coaches are utilized in our school districts. If you are not the best person in your district to respond to this survey, I ask you to please forward this email to that individual and respond to this email with that individual's name and email address.

Your responses to this survey are very important and will help with our understanding of what instructional coaching looks like in NC schools. You will be asked if you employ, or have employed, instructional coaches in your high schools and if so, how they were used to increase student learning.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser).

Survey Link: http://wcu.qualtrics.com/SE?SID=SV_8AqqFneeMUhBPx2&SVID

Please respond to this survey within the next two weeks. Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. The survey will take approximately 15 minutes to complete. You are free to withdraw from this survey at any time. Please feel free to ask questions before or during survey participation. No personally identifiable information will be associated with your responses in any reports of this data. There are no known risks associated with this study. The expected benefit associated with your participation is the improved knowledge and practice in the field of coaching. Should you have any further questions or comments, please feel free to contact me at ***** or *****. You may contact my dissertation advisor, Dr. Meagan Karvonen, at ***** or *****. If you have questions or concerns about your treatment as a participant in the study, please contact the chairperson of WCU's Institutional Review Board at *****.

I appreciate your time and consideration in completing this survey. If you wish to receive a summary of the results of this study, please indicate so in a response email.

Sincerely,

Karen Sumner
Western Region Education Facilitator

To: Curriculum Director
Date: July 6, 2010
Subject: Instructional Coaching Survey

I recently sent you an email asking you to respond to a brief survey about instructional coaching in your district. Your responses to this survey are important and will help with advancing our understanding of ways instructional coaches are being used to increase student achievement.

This survey is short and should only take you 15 minutes to complete. If you have already completed the survey, I appreciate your participation. If you have not yet responded to the survey, I ask you to take a few minutes and complete the survey.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser).

Survey Link: http://wcu.qualtrics.com/SE?SID=SV_8AqqFneeMUhBPx2&SVID

Your response is important. Getting direct feedback from curriculum leaders is critical in understanding the extent to which school districts are utilizing instructional coaches. Thank you for your help by completing the survey.

Sincerely,

Karen Sumner
Western Region Education Facilitator
NCDPI

To: Curriculum Director
Date: July 17, 2010
Subject: Please complete the Instructional Coach survey

It is an extremely busy time of year for you, and I understand how valuable your time is. I am hoping you may be able to give a few minutes of your time before the end of the month to help me collect important information regarding instructional coaching in North Carolina school districts.

If you have already completed the survey, I really appreciate your participation. If you have not yet responded, I urge you to complete the survey. I plan to end this study August 2nd, so I wanted to email everyone who has not responded to make sure you had a chance to participate.

Please click on the link below to go to the survey website (or copy and paste the survey link into your Internet browser) to begin the survey.

Survey Link: http://wcu.qualtrics.com/SE?SID=SV_8AqqFneeMUhBPx2&SVID

Thank you in advance for completing the survey. Your responses are truly important!

Sincerely,

Karen Sumner
Western Region Education Facilitator
NCDPI

Appendix F

Consent form for Instructional Coach Coordinator and High School Instructional Coach Interviews

To: Instructional Coach Coordinator and High School Instructional Coach
Date:
Subject: Instructional Coaching Interviews

I ask for your participation in an interview that I wish to conduct with you regarding high school instructional coaching in North Carolina. After analyzing data on your coaching program and end of course test results, your school demonstrated a relationship between coaching and student achievement. I am seeking information on the specific characteristics of high school instructional coaches in your high schools.

Your responses to this interview are very important and will help with understanding of N.C. high school instructional coaching. You will be asked about how your instructional coaches were used to increase student learning.

Your participation in this interview is entirely voluntary and all of your responses will be kept confidential. The interview should take approximately 60 minutes to complete. You are free to withdraw from this interview at any time. Please feel free to ask questions before or during interview participation. No personally identifiable information will be associated with your responses in any reports of this data. There are no known risks associated with this study. The expected benefit associated with your participation is the improved body of knowledge and practice in the field of instructional coaching. Should you have any further questions or comments, please feel free to contact me at ***** or *****. You may contact my dissertation advisor, Dr. Meagan Karvonen, at *****, or *****. If you have questions or concerns about your treatment as a participant in the study, please contact the chairperson of WCU's Institutional Review Board at *****.

I appreciate your time and consideration in agreeing to this interview. If you wish to receive a summary of the results of this study, please indicate so in the interview. Your signature at the bottom of this letter indicates consent for the interview.

Sincerely,

Karen Sumner
Western Region Education Facilitator
NCDPI

Appendix G

Interview protocol for district leader/coaching supervisor

Thank you for agreeing to participate in this research study as an interviewee. Your comments will be kept confidential.

1. Talk about your instructional coach program. Probe: what made your district decide to hire high school coaches? On whose work did you base your plan?
What is the role of instructional coaches in your district?
2. How do you support or work with your high school instructional coaches?
Probe...monthly meetings, required pd, check ins....
3. How has the instructional coach role changed since first being implemented here?
4. What do coaches do on a day-to-day basis in their high schools?
5. How does your instructional coach role connect with school-level staff development? Probes...their training, planning, presenting, follow up, evaluation, individual training
6. How have instructional coaches made an impact in your district? Probes...
7. How have instructional coaches improved teaching? Probe...what kind of differences have you seen in your teachers? Have you received comments from teachers or administrators regarding teacher change?
8. How have instructional coaches improved student learning? Discuss how the instructional coaches assist with increasing student achievement.
9. How are your instructional coaches and the activities they facilitate evaluated?

Appendix H

Interview protocol for instructional coach

Thank you for agreeing to be interviewed regarding your work as an instructional coach. Your responses will be kept confidential.

1. Tell me about your work as an instructional coach? Probe...why did you become one? What are some of the rewards? How does it compare to classroom teaching?
2. What subjects you support? Probes...Do you feel more comfortable in some than others? What are some examples of activities you have done in different subjects?
3. Please describe your background prior to coaching. Probe... How long have you been coaching? How prepared did you feel?
4. What professional development have you received in your role as an instructional coach?
5. Describe your interactions with other district coaches. Probes...how often, nature, other coaches in the region or state....
6. How did you go about getting integrated into your school(s)? Probes...How did you gain trust? How were you introduced to the teachers? What were they told about your role?
7. How do you determine your goals for your school(s)? Probes...(daily, weekly, etc.) With central office or administrative support? Are they reviewed?
8. How would you describe your role as coach?
9. What is the most enjoyable aspect of coaching?

