INSTRUCTIONAL COACHING IN A SMALL DISTRICT: A MIXED METHODS STUDY OF TEACHERS' CONCERNS

Melissa J. Mayfield, B.S., M.Ed.

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APPROVED:

Jane B. Huffman, Committee Chair
Sarah S. Pratt, Minor Professor
R.Jefferson George, Committee Member
Phillip J. Blacklock, Committee Member
James D. Laney, Chair of the Department of Teacher Education and Administration
Bertina Combes, Interim Dean of the College of Education
Victor Prybutok, Vice Provost of the Toulouse Graduate School

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This study utilized a convergent parallel mixed methods design to study teachers' concerns during implementation of instructional coaching for math in a rural PK-12 district in north Texas over a three-year time period. Five campuses were included in the study: one high school (Grades 9-12), one middle school (grades 6-8), and three elementary campuses (pre-kindergarten through Grade 5). In a school district of 3,400 students and 241 teachers, 52 math teachers were surveyed and interviewed for their perceptions and concerns during implementation of instructional math coaching in order to assist central office administration in knowing how to support teachers through the change process. Data included the Stages of Concern Questionnaire (SoCQ) at three points during the study period analyzed through nonparametric statistical analysis. No statistically significant differences were found to exist between campuses. However, a statistically significant difference was found when campuses were grouped by elementary and secondary campuses. Open-Ended Statements of Concern and focus group interview data by campus served as qualitative data to triangulate concerns and to measure situational evidence of rurality influence on teachers' concerns. Convergence of qualitative and quantitative findings indicate concerns clustered in unconcerned, informational, and personal stages. Evidence of rural contextual influences point to limited resources and dense staff relationships in rural schools. This data aids the district under study in supporting teachers through the process of change as an instructional coaching program for math is implemented systemically.

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CHAPTER 1

INTRODUCTION

The scenario of school change resembles a performer precariously spinning plates. While maintaining a number of plates whirling in the air, the performer continually adds to the count of plates. Balancing, maintaining elevation, increasing speed of rotation, or adding new plates to the spinning consumes the performer's efforts. This visual image also describes the complexities of school change. Managing the factors in successful school change continues to elude many school leaders (Elmore, 1996). Change, in relation to schools and education, is a process of developmental growth and improvement based on learning (Hord & Roussin, 2013). Thus, successful school innovations, or new ideas or methods to accomplish educational change, require a delicate balance of many factors including learning and building capacity in individuals, groups, and the organization (Fullan, 2008; Fullan & Knight, 2011; Leithwood, 2010; Senge, 2006). The situational context of a rural school district with limited fiscal and human capital only increases the challenge (Harmon, Gordanier, Henry, & George, 2007). Change agents in small or rural schools must balance all of the spinning plates of contextual factors in any school change effort.

Much of the literature on school reform points to elements necessary for successful school change. Leithwood's (2010) review of the literature suggests several elements as crucial if schools desire successful, sustained change. Included among the indicators: a focus on student learning, collaborative relationships, and effective professional learning that is job embedded (Leithwood, 2010). Other authors point to the need for professional learning to build teaching capacity of staff (Fullan, Bertani, &

Quinn, 2004; S. M. Johnson, 2012; Penlington, Kington, & Day, 2008). Teaching capacity encompasses the knowledge and practices necessary to be an effective educator (Koellner, Jacobs, & Borko, 2011). This capacity is refined through professional learning and growth at the organizational and individual levels.

Augmenting professional learning to build instructional capacity with instructional coaching may be powerful as a means of systemic reform (Fullan & Knight, 2011). Instructional coaching, a method of providing job-embedded professional development and growth support to teachers, shows gains in popularity over recent years (Bubb & Earley, 2009). Instructional coaching as an innovation addresses school change in the heart of the school – the classroom. A partnership between coach and teacher, instructional coaching uses the collaborative relationship to nurture the development of pedagogical skills and content knowledge (Knight, 2004). An instructional coach collaborates with the teacher to analyze student data, identify areas to address, and assists in setting instructional goals. The instructional coach empowers the teacher with ideas and resources to help formulate and enact action plans, and guides the educator through a professional reflection on the implementation of the plan (Coggins, Stoddard, & Cutler, 2003; Cornett & Knight, 2009; Driscoll, 2008). Instructional coaching may be a one-time assistance or a series of coaching cycles.

The research literature on instructional coaching as a capacity-building endeavor reflects growth as a common practice in many urban and suburban school districts. Large districts utilize coaching as a form of job-embedded professional development to build teacher capacity (Biancarosa, Bryk, & Dexter, 2010; Neufeld & Roper, 2002; Russo, 2004; Scurry, 2010). Boston's public schools implemented the Collaborative

Coaching and Learning program as an instructional coaching initiative. Neufeld and Roper (2003) report teachers participating in the coaching initiative increase personal commitment to professional development and experience greater collaboration around classroom instruction. In the San Francisco Bay Area, instructional coaches serve as a bridge between a vision of improvement and the actual enactment of reform efforts (Coggins, Stoddard, & Cutler, 2003). A four-year longitudinal study of over 8,000 kindergarten through Grade 2 students in Chicago indicates teachers undergoing long-term coaching efforts may have higher student achievement results in reading (Biancarosa, Bryk, & Dexter, 2010).

Integral to the coaching process are the attitudes and perspectives of the teacher in the coaching partnership. Fuller (1969) reports three major areas of concern of beginning teachers: self, task, and impact. The teacher in a coaching setting brings to the partnership a personal area of concern such as confidence to handle the classroom, an issue of practice such as the use of instructional strategies, or a student outcome goal that indicates impact of learning on the student. Also inherent to the collaboration between a coach and teacher are feelings integral to the personal nature of teaching, concerns about the experience of coaching, and a willingness or reluctance to share control of the classroom setting. Hargreaves (1998) describes the emotional dimension of teaching as one of the most fundamental aspects of teaching and learning. The perceptions and anxieties of teachers, and the support and interventions given to such concerns, can affect the success of a coaching program as a capacity-building effort in school change (Kubek, 2012).

When examining the change process, building professional capacity, and implementing an instructional coaching program, the literature indicating any differences in teachers' attitudes in small and rural schools is scarce. Though student achievement concerns may be similar to larger districts, smaller schools have unique qualities that may limit capacity building in the classroom (Harmon et al., 2007). These qualities may include higher rates of student poverty, staff recruitment and retention issues, teacher isolation, and limited fiscal resources (Harmon et al., 2007).

The literature reveals only a small number of studies pertaining to instructional coaching in small and rural schools. One such study describes the difficulties of an instructional coach gaining access to the classroom in a rural school (Hartman, 2013). This case study reports factors affecting access include insider-versus-outsider status, the dense level of staff relationships in rural schools, and defining the role of the instructional coach (Hartman, 2013). Wyoming's State Department of Education implemented an instructional facilitator program for all schools in the state in 2006. Again, defining the role of the instructional coach emerges as crucial in the success of the Wyoming program (Rush & Young, 2011). Additionally, a 5-year study of rural schools in Missouri implementing a sustained professional development program for math and science with lead teachers assuming a classroom coaching role reports some teachers' resentment of their colleagues' elevated positions impedes access to collaborative efforts focused on changing teaching practices (Harmon et al., 2007).

While these few studies reflect the importance of relationships and teachers' concerns when implementing an instructional coaching program in smaller schools, the

literature does not adequately address how implementation may be different in small and rural schools.

Purpose Statement

The purpose of this mixed methods exploratory case study is to identify the concerns of teachers during implementation of an instructional math-coaching program in a small north Texas district and to determine if any concerns might be attributable to the rural context of the district. Armed with such knowledge, district leaders can adjust strategies and actions to scaffold support for teachers grappling with more rigorous state standards and more demanding assessment programs. Quantitative data, collected through three administrations of the Stages of Concern Questionnaire (SoCQ), and qualitative data gathered from the Open-Ended Statements of Concern and campus focus group interviews provides complementarity of information for interpretation of the first three years of implementation of a district math coaching program. This design allows for utilization of quantitative findings while exploring any concerns exclusive to a small rural school setting. The study also seeks to expand the literature on change processes in a rural school setting, specifically the implementation of instructional coaching.

Hartman (2013) identifies a need for case study research on coaching programs in small and rural schools, and in particular, studies addressing gaining entry to the classroom and establishing trust with the teacher. A review of the literature indicates a need for research into quality professional development of teachers in small schools (Yarrow, Ballantyne, Hansford, Herschell, & Millwater, 1999). McCrary (2011) appeals

for additional studies on the contextual factors that impact instructional coaching programs and successful implementation.

This study serves a pragmatic purpose in providing district and school administrators with data and information to shore up supports for teachers involved in instructional coaching. It also aims to help fill the gap in literature on instructional coaching implementation in small and rural schools.

Problem Statement

In a small rural school district in north Texas, instructional coaching is implemented to provide support to math teachers in systemically improving student learning and success in math. After the state implements new rigorous math standards and a new state assessment, the district struggles with improving the rigor of math instruction to ensure success of students. Systemic professional development plays an important role in the district through training, professional learning teams, and a newly-implemented math instructional coaching program.

The literature boasts a wealth of information on implementation of instructional coaching programs; however, few studies illuminate how the implementation process may be unique in small schools with few resources. Thus, the problem in this study is to measure teachers' attitudes and perspectives and examine any connection to the rural context.

This mixed methods parallel case study examines the concerns and attitudes of teachers through both qualitative and quantitative measures in a rural fringe district in north Texas. Quantitative data collected, provided by the district under study as repeatedly measured by the SoCQ, serves to indicate the level of concerns teachers

face over a three-year period when an instructional coaching program for math begins. Open-Ended Statements of Concern (Newlove & Hall, 1976) administered to math teachers and focus group interviews conducted with math teachers by campus serve as qualitative data. This study explores how teachers' perceptions may change over the first three years of implementation of a math instructional coaching program and what concerns may be unique due to the situational context of rural schools.

Research Questions

This mixed methods exploratory case study examines teachers' concerns in the first three years of implementation of an instructional coaching program for math. This small, rural fringe district in north Texas includes five campuses with a total student enrollment of 3,400. The unit of analysis in the current study is two-fold. First, campus mean scores of the SoCQ are analyzed through non-parametric statistics. Second, the analysis looks at each of the five campuses as a unit of analysis in examining patterns and trends in the SoCQ data between campuses over a three-year implementation period. Qualitative analysis examines math teachers' responses to the Open-Ended Statements of Concern, administered in the third year of the math coaching implementation and also examines group interview data to determine if any concerns relate to rurality issues. The research questions focus on the continuum of teacher concerns and the relationship of such concerns to the rural school setting.

1. What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative)

2. What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level annually over the first

three years of implementation of a math instructional coaching program in a rural school? (Quantitative)

3. How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? (Qualitative)

4. What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? (Qualitative)

Conceptual Framework

The conceptual framework for this study is the concerns-based adoption model (CBAM) (Hall, Wallace, & Dossett, 1973). Developed in the 1960s and 1970s by a team of researchers at the Research and Development Center for Teacher Education at the University of Texas at Austin, CBAM provides a look at the process of most any school change (Hord, Rutherford, Huling, & Hall, 2008). S. Anderson (1997) writes that CBAM is arguably the "most robust and empirically grounded theoretical model for the implementation of educational innovations to come out of educational change research in the 1970s and 1980s" (p. 331). Comprised of the concepts of change, innovation, implementation, systems thinking, diffusion, and organizational development, CBAM focuses on stages of provisional implementation, installation, and institutionalization of an innovation (Hord & Roussin, 2013). CBAM gives structure to the various activities, decisions, and issues that surround integration of an innovation into the functional structure of an organization (Hall et al., 1973). While the model reflects simplicity at first glance, in practice it shows "…appreciation of the complexity, time and persistence required in accomplishing major change efforts" (Hall, 2013, p. 265). As a conceptual framework, CBAM provides an interpretive, diagnostic approach to the social reality of

change (Jabareen, 2009). CBAM incorporates three primary constructs for measuring the progress of implementation: Innovation Configurations, Levels of Use, and Stages of Concern (Hall et al., 1973).

Innovation Configurations are all the ways in which an organization implements an innovation. Hall and George (2000) reflect on Innovation Configurations as the fidelity of implementation of an educational innovation. Different teachers may utilize instructional coaching in different manners. Each method of implementation could be an Innovation Configuration Map (ICM) that separates the components of the implementation and describes each in a concise manner, similar to a road map. ICM development occurs in a group setting with consensus on the various components of implementation. ICMs describe the operational aspect of what the innovation looks like in the classroom vividly enough to paint a mental picture (Hall & George, 2000).

The Levels of Use (LoU) construct utilizes a focused interview by a trained change facilitator to determine the actions and behaviors of the implementer, rating the level of use of the innovation on a scale of zero to eight (Hall & Hord, 2011a). The focused interview delves into specific activities performed by the teacher implementing the innovation and determines classification of use based upon a continuum of non-use to renewal, the highest level of use (Hall & Hord, 2011a). The LoU interview is not utilized in this study.

The Stages of Concern (SoC), the construct of CBAM utilized in this study, examines the thoughts, feelings, preoccupations, attitudes, perceptions, and anxieties given to a particular issue by change implementers (Hall, George, & Rutherford, 1977; Hall et al., 1973; Hall, 2013). SoC acts as the primary focus in this study and assists in

examining how teachers' concerns and advancement in implementation of an instructional coaching program for math occur in a small rural school district in north Texas.

Based on the work of Frances Fuller (1969), the determination of the SoC supports the change facilitator in monitoring the progression of implementation based upon concerns relative to self, task, and impact (Hall et al., 1977). Concerns fall upon a continuum scale of seven stages: unconcerned, informational, personal, management, consequence, collaboration, and refocusing (Hall et al., 1977). See Table 1 for a description of each stage.

Table 1

Concerns-Based Adoption Model: Stages of Concern

Fuller's (1969) Conceptualization	Stage of Concern	Descriptor
Self	0 Unconcerned	Little concern about or involvement with the innovation is indicated.
	1 Informational	A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about herself/himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.
	2 Personal	Individual is uncertain about the demands of the innovation, her/his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.
Task	3 Management	Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.
Impact	4 Consequence	Attention focuses on impact of the innovation on students in her/his immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.
	5 Collaboration	The focus is on coordination and cooperation with others regarding use of the innovation.
	6 Refocusing	The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

Note. Adapted from *Measuring Stages of Concern about the Innovation: A Manual for the Use of the SoC Questionnaire*, 1977, by G. E. Hall, A. A. George, and W. L. Rutherford, p. 7. Copyright 2011 by The University of Texas, Austin, Texas.

CBAM is a classic and enduring model of innovation adoption and can be useful to change facilitators in most any school change effort (Hall & Hord, 2011b). The conceptual framework of CBAM is especially useful in this study to measure concerns and perceptions of teachers involved in the study.

Significance of the Study

This mixed methods exploratory case study adds to the field of study on small and rural schools implementing change innovations and the distinctive concerns expressed by teachers in such settings. The innovation in this case study is an instructional coaching program for math. This information assists change facilitators in this small district in providing appropriate interventions to teachers to support implementation progress of the instructional coaching program. Similar-sized school districts may benefit from examination of patterns of successes and concerns relative to rural district characteristics. District and campus administration may provide for scaffolded supports for teachers in the implementation of innovations. Change facilitators can benefit from understanding how implementing a change process may have unique teacher concerns due to the situational factors in a small or rural school setting. This study also enriches the understanding of factors needed for an instructional coaching program to contribute to school improvement in a small school.

Delimitations

The situational context of the district under study provides for several delimitations. The case study explored only one small district in north Texas. The district, demographically labeled as a rural-fringe district by the United States Department of Education (U.S. Census Bureau, 2011), is located in a rural area of north

Texas with a student population over 3,400 and a total of five campuses. Due to the lack of small schools in this area instituting instructional coaching programs, the sample is one of convenience. Most districts in this region have even smaller student populations than the one studied. Within the district, the limitation of only five campuses further affects the ability to generalize findings to other districts. In addition, the implementation only targets the content area of math, restricting the number of possible teacher participants involved to only 10-18 teachers per campus.

The timeframe for the study spans three school years from 2014-2016. Concerns and perceptions of teachers as the agents of change serve as the only perspectives examined in this study. Other perspectives outside the scope of this study include instructional coaches, campus administration, district administration, students, and students' parents. In addition, the district collects SoCQ data over the course of three school years for the district's own research purposes, and this data acts as *ex post facto* data in this study.

Finally, due to staff turnover, the sample groups for each campus do not provide matched samples over the three-year period of the study. While the small, unmatched sample sizes provide for nonparametric statistical examination of campuses' mean scores on the SoCQ responses, inferential statistical analysis is limited.

Assumptions

Several assumptions permeate this study. First, it is assumed that a mixed methods research design yields the most useful data and best reflects the comprehensive factors in this rural case. Assuming qualitative data reinforces quantitative data, the use of both quantitative and qualitative measures generates a

more complete reflection of teachers' perceptions and attitudes (Creswell, 2015). Second, it is assumed that participants in the study answered questionnaires, open-ended statements, and interview questions truthfully. Finally, it is assumed that due to small sample sizes, nonparametric statistical procedures offer the most reliable and valid analysis of quantitative data.

Definition of Terms

Change facilitator. A person within or outside of an entity whose responsibilities include helping others to implement change (Hall, Newlove, George, Rutherford, & Hord, 1991).

Concerns-based adoption model (CBAM). The concerns-based adoption model, a model representing the course of adoption of an educational innovation, focuses on the process of change rather than advice of what to change (Hord et al., 2008).

Innovation. A program, process, or practice that is new to a school, faculty, or teacher (Hord et al., 2008).

Instructional coaching. A method of providing job-embedded professional growth support that involves partnership between a coach and teacher to progress through a cycle of pre-observation conferencing, coaching, and post-observation conferencing (Bubb & Earley, 2009).

Open-Ended Statements of Concerns. A series of open-ended statements, completed by change implementers, intended to develop a richer portrayal of the array and depth of concerns about implementation than is conveyed with the SoCQ alone (Newlove & Hall, 1976).

Stages of Concern Questionnaire. The dimension of CBAM that focuses on the concerns of individual implementers involved in change (Hall et al., 1973).

Teaching capacity. Teaching capacity encompasses the knowledge and practices necessary to be an effective educator (Koellner et al., 2011).

Organization of Study

This study is organized into five chapters. Chapter 1 Introduction offers an overview of the study, the conceptual framework, the purpose of the study, research questions, significance of the study, delimitations imposed on the study, assumptions, and definition of terms. Chapter 2 Literature Review discusses the concepts of school change, the use of professional development as a means of developing capacity, and the context of the rural school setting for both school change and professional development. The chapter concludes with the conceptual framework of the concerns-based adoption model as the basic conceptual structure underlying this study. Chapter 3 Method describes the mixed methods design for the study, the participants, the data collection procedures, the nonparametric statistics chosen for the study, and the analysis of data. Chapter 4 Results reports the findings from the data analysis. Chapter 5 Discussion serves to illuminate the findings, study conclusions, and recommendations for further study.

CHAPTER 2

LITERATURE REVIEW

Introduction

"Managing change, like politics, is the art of the possible," (Corbett, Firestone, & Rossman, 1987, p. 57). The literature, rich in system-wide school change advice, offers district administrators sound guidance on measures supporting change. *Working Systemically,* a school reform model for schools proposed by the Southwest Educational Development Laboratory, outlines six levels of the educational enterprise (Cowan, Joyner, & Beckwith, 2012). The first three levels mentioned in *Working Systemically* – national, state, and intermediary agencies – are outside the scope of this study. However, all three remaining levels – district, school, and classroom – dominate the focus of this study (Cowan et al., 2012). Supported or hindered by actions of the district, change at the school and classroom levels remains a much sought-after condition. As an important conduit for district and school change, professional learning of teachers resides at the heart of any change aimed at improving teaching and learning (Hord & Roussin, 2013). While writers and researchers grumble about the inefficiency of professional development, the conduit for change still resides in professional learning.

The context of change in small and rural schools is similar to urban and suburban school change depicted in the literature (J. Johnson & Howley, 2015). While many similarities exist between schools of various sizes and locales, rural schools still face unique challenges in accomplishing systemic change through professional development (Glover & Nugent, 2011).

This study details such an attempt at school change targeting the math classroom through professional learning in the form of instructional coaching. Instructional coaching, while not a new approach, remains unattainable for many small and rural schools which are often limited by inadequate resources. The district under study however, implemented instructional coaching for the academic area in which student achievement reflected need – mathematics. Measuring teachers' views and concerns with the SoCQ, the district attempts to provide support for these concerns in the process of implementation. The small school struggles with some issues that are unique to rural and small schools and turns to the literature for guidance on the execution of a successful instructional coaching program. Teachers' attitudes, perceptions, and concerns act as puzzle pieces for district administrators. Fitting together these puzzle pieces to support each teacher is paramount as central office administrators look to precedents in the literature for guidance.

In order to study the concerns of teachers during the implementation of an instructional coaching innovation in a small school, reviewing the extant literature relative to school change assumes a key role. The first section of this literature review examines the concept of change, the patterns of successful system-wide and school-level change, and the role of the district in support of change at the campus and classroom levels. The rural school perspective in relation to school change and innovation implementation assists in understanding the context of the present study.

About one-third of all U. S. schools are rural, and about one-half of the world's students are rural (Provasnik et al., 2007). Yet the majority of educational research is

conducted in urban schools. Rural schools have contextual strengths and challenges that are unique and should impact policy (Provasnik et al., 2007).

The small district under study enrolls approximately 3,400 students, sits amidst farmland, oilfields, and industry, and is located five miles from an urbanized area of just over 100,000 population. The district takes a progressive approach to professional learning through strategic partnerships with Discovery Education, Apple, Marzano Research, and area foundations. Professional learning teams in the district collaborate on curriculum, explore data on student achievement, and focus on student learning outcomes. The district boasts a strong leadership team, employs a relatively young teaching staff, and garners military impact aid due to a nearby Air Force base. Economically disadvantaged students comprise fifty percent of the student population, and the ethnicity of the student body is 70 percent Caucasian, 15 percent Hispanic, seven percent African American, and eight percent other races (Texas Education Agency, 2014).

This study examines teachers' perceptions in this small, rural school district during the first three years of implementation of an instructional coaching program. While the district exhibits many rural-district traits, Greenough and Nelson (2015) caution scholars in calling a school rural due to the variability in proximity to rural areas. Closeness to more urbanized areas can impact poverty rates, staffing issues, average student enrollment, enrollment of minorities, and availability of resources (Greenough & Nelson, 2015). Kannapel and DeYoung (1999) write of ambiguity over the concept of "rural" and the inappropriateness of imposing urban-style reforms on rural schools.

While change literature and the rural context act as starting points, the next literature review section examines professional learning for teachers. Specifically, instructional coaching as a professional learning innovation leads to an examination of the role of the district and school in supporting such a systemic change attempt. Few studies avail themselves to instructional coaching in rural schools, but a careful look at the limited examples point to a gap in literature (Hartman, 2013; Yarrow et al., 1999). Offering support as a change model, CBAM provides tools and advice for the district and provides the conceptual framework for this study. Following various applications of CBAM by numerous districts and campuses provides useful information, and particular attention is devoted to examining teachers' perceptions and stages of concern during change. Figure 1 shows the organization of this chapter. For each major concept explored in the literature, the rural school context is included in the review.

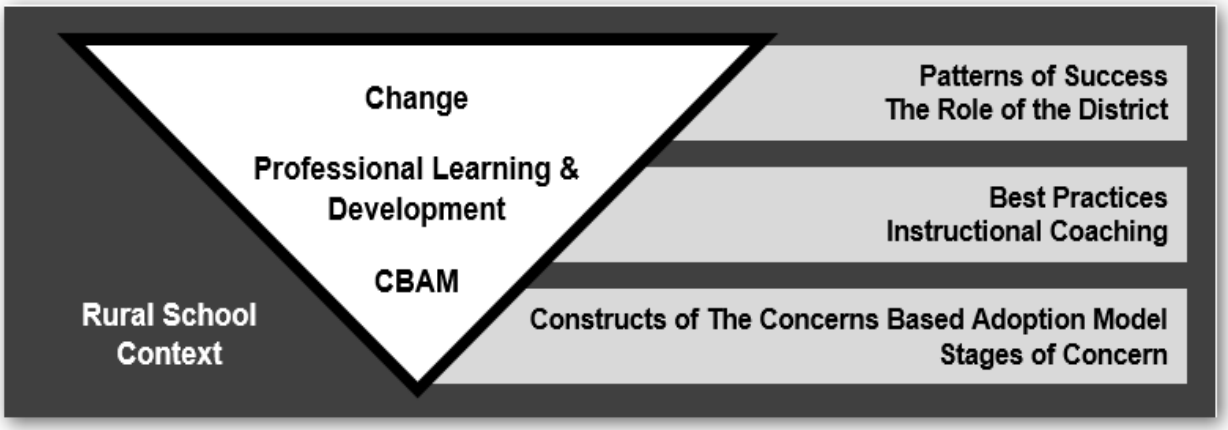

Figure 1. Literature review organization.

Research Questions

A mix of quantitative and qualitative questions drive this mixed methods research study.

1. What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire

measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative)

2. What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level annually over the first three years of implementation of a math instructional coaching program in a rural school? (Quantitative)

3. How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? (Qualitative)

4. What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? (Qualitative)

Change

School change is a well-researched and broad area of study. District leaders often latch onto flashy programs and empty promises touting best practices in pursuit of successful change. Leithwood (2008) cautions school leaders that the term “best practices” can encompass four connotations: (a) bandwagons based on hyped enthusiasm, (b) slogans of broad visionary statements, (c) doing what we have always done because we must be right, and (d) systemic empirical research. These four connotation of “best practices” reveal lessons learned in the literature from decades of study (Leithwood, 2008).

Planned organizational change occurs in two manners (Cuban, 1987). First-order change, school reform at the surface level, addresses mostly quality control issues such as existing structures and policies (Cuban, 1987). However, the second manner, more elusive, transforms current practices with novel solutions to design-oriented problems. Cuban (1987, 2013) refers to this transformational change as second-order change and

postulates the reasons for elusiveness partially as a failure of policymakers to discern teacher quality from the quality of teachers. Cuban posits that teacher quality involves the list of qualifications and the personality characteristics that may make an individual ideal for the position of teacher. However, he claims quality of teaching is the ability to alter the environment in which the teacher works and results in student learning (Cuban, 2013). This supposition echoes in the work of Bryk and Easton (1994) reporting on commonalities of school leadership for improving campuses within Chicago's school reform movement. Among these commonalities are systemic approaches, a culture of professionalism and community, and a focus on classroom practices with a clear sense of purpose that resonate throughout the literature (Bryk & Easton, 1994).

Patterns of Successful Change at the District Level

Leithwood (2010) identifies ten district characteristics shown effective at closing the achievement gap of students including

1. system-wide focus on student achievement;
2. district-wide, job-embedded professional development that builds the capacity of staff;
3. building and maintaining communication and relationships through district culture;
4. systemic approaches to curriculum and instruction;
5. using student data for planning and accountability;
6. district-wide sense of efficacy;
7. investing in instructional leadership;
8. implementing targeted and phased school improvement efforts;
9. strategic engagement with state and/or federal agendas for change; and
10. infrastructure alignment.

When examining the characteristics of successful district and campus change for this study, the emphasis for this review of literature is on the first two elements of Leithwood's (2010) list, centering more directly on the unwavering focus on student achievement and actions influencing the teacher through professional learning. These commonalities of success are echoed in Bryk's work (2010), whose findings indicate a focus on professional capacity and other support indicators can increase the chances of a campus experiencing success in school reform by as much as ten-fold. Likewise, a case study of nine districts investigating steps taken by school leaders for school improvement indicates a learner-centered culture focusing on quality professional learning that directly affects student-learning imperative to successful school change (Bubb & Earley, 2009). Continuous inquiry into student learning outcomes emerges as a common factor in a case study of three districts – one each in the United States, England, and Canada – which examines district leadership patterns of successful school change (Fullan et al., 2004). These seminal works all point to the importance of high-quality teaching for optimal student learning.

While district leadership realizes the impact of quality teaching on student learning, the role assumed by the district is often a precarious balance of power with school leaders. The role of the district in supporting campus efforts is worth exploration.

The Role of the District in Supporting School Change

At the district level, seminal works provide solid advice to districts undergoing change (Hannay & Earl, 2012; Hord & Roussin, 2013; Rorrer, Skrla, & Scheurich, 2008). Change goals provide clear linkage to enhancing the work of schools (Hord & Roussin, 2013). In a literature review of over eighty studies, change at a system level is

portrayed as complex and requiring variable coupling between tight controls and looser coupling and ongoing adjustment to the needs of those who are implementing the change (Rorrer et al., 2008).

In a study of twelve schools in a large urban district in Canada, researchers studied the perceptions of teachers concerning the district-led reform efforts to change teachers' mental models (Hannay & Earl, 2012). The lack of coherence in reform efforts is identified as a pattern as teachers perceive multiple initiatives that do not relate to each other. In order for the district to better support the innovative campuses, the district leaders begin working on a common vocabulary across the district. They also develop a more coherent vision and create a visual showing a focus on student learning. The district fashions support structures for teachers' dialogue on student data and reflection on practices through collegial collaboration implemented at each campus. Though the innovations fail to be institutionalized systemically, at the end of the three-year study period, the report indicates growth in improving inquiry methods on teaching and student learning, as mental models transform (Hannay & Earl, 2012).

Similarly, a study of Cleveland schools examined district-wide reform efforts of professional development for collegial collaboration, raising expectations for staff and students, and providing more instructional leadership to teachers (Scott & Bagakas, 2004). This study reports on surveying 620 teachers from eighty-two elementary campuses in the district to determine relationships between teachers' perceptions on collegial collaboration and fourth grade student performance on the Ohio state assessment for reading and math. Statistical analyses performed by linear multiple regression indicated an improvement in perceptions concerning collegial collaboration,

but a decreasing score for district provision of ample professional learning opportunities. Though not statistically significant, schools whose teachers participated in district reform efforts showed fourth grade scores that increased slightly on the state assessment. Schools with teachers not participating in district reforms witnessed a slight decline to students' scores (Scott & Bagakas, 2004). Embracing school reforms at the school and teacher levels may influence student achievement. However, this study also speaks to the necessity of ongoing training and support for teachers. Professional development provided by the district may help to fill this gap.

Johnson and Chrispeels (2010) report on a comparative case study examining linkages between the central office and campuses' efforts to improve. Those linkages pervade the school system and often make or break campus attempts at improvement (P. E. Johnson & Chrispeels, 2010). Brezicha, Bergamerk, and Mitra (2015) examined implementation of a new curriculum initiative. Dependent upon the amount of training and support provided, teachers' implementation levels point to the imperative nature of differentiating professional development and adjusting support for the needs of the teachers. Leaders' actions influence teachers' beliefs and philosophies about school change through infrastructures of support (Brezicha et al., 2015).

District leadership can influence instructional practices by providing coherence in professional learning efforts (Firestone, Mangin, Martinez, & Polovsky, 2005). A qualitative study of three large urban districts examined how professional learning structures influence classroom practices. Two elementary campuses, one middle school, and one high school in each district participated in the study. District A utilized outside partnerships, high-profile providers, and a consistent model for professional

learning across the district to provide content-specific, curriculum-based professional learning. Follow-up provisions in District A included campus peer facilitators who assisted with implementation. District B utilized limited outside partnerships and professional learning topics that targeted special student populations including English Language Learners and Special Education students. The primary emphasis on learning failed to result in a focus on raising test scores, nor did District B utilize provisions of follow-up professional learning (Firestone et al., 2005). Rorrer and associates would refer to this as looser coupling (Rorrer et al., 2008). District C in the study approached professional learning haphazardly with no set plan or vision. Teacher interviews from all three districts served as primary data for the study and findings indicate the type of professional learning provided by District A most effective in meeting teachers' needs for relevant content. Conclusions drawn also indicate that coherence matters. As district leaders actively support a district vision and mission, provide structures for sustained support, and determine uses for any external partnerships, indications show these leaders affect teachers' use or nonuse of professional learning (Firestone et al., 2005).

While the district administration provides coherence in professional development, the campus administration also provides numerous supports to teachers. The literature reflects the vital role of school administrators' support and encouragement of professional learning and change efforts.

Focusing Support at the School-Level

While the district encourages, requires, or mandates district-wide reforms, campus-level leadership provides the context for change. Principals and other school leaders exercise a more direct effect on teacher and student learning.

A longitudinal study of 192 elementary schools was conducted to determine the effects of school leadership by following over 12,000 students from third grade to fifth grade and examining student achievement in relation to collaborative school leadership (Hallinger & Heck, 2010). The study examined changes in leadership and academic capacity, and the possible influence of such changes on student achievement. Leadership qualities include empowering staff through shared leadership, facilitating actions as a result of the vision for the school, and allocating resources to support teaching and learning. Student performance on the Stanford Achievement Test over time for a cohort of students provided achievement data for the study. A state survey measured perceptions of teachers, fifth grade students, and fifth grade parents. Researchers found a statistically significant indirect effect of shared campus leadership on the students' reading achievement and attribute this impact to the school leadership's intentional building of instructional capacity (Hallinger & Heck, 2010).

A synthesis of eighty-one unpublished theses and dissertations on the impact of transformational school leadership on student achievement indicates a statistically significant small effect (Leithwood & Sun, 2012). Leithwood, Patten, and Jantzi (2010) examined improvement of student achievement by improving quality of leadership at the school. Data from surveys of teachers reported on four pathways of leadership practices. The Rational Path details the problem solving capacity relative to instructional leadership and includes knowledge of curriculum, high student and staff expectations, the climate of discipline, and knowledge of instructional practices. The Emotional Path outlines the leader's response to feelings and perceptions of staff members, teacher efficacy, and the morale of the school. The Organizational Path includes the culture,

policies, and structures of the school. The Family Path examines the leader's abilities to establish and build home-school relationships. Survey results of over 1,400 teachers across 199 schools were reported. Findings indicate a statistically significant relationship between teachers' perceptions of their school leader and high scores in the Emotional Path. Conclusions from the researchers emphasize the necessity of a narrowed research approach to leadership's influence on student achievement. Narrowing research to the most important specific variables will provide school administrators with information on which to focus efforts (Leithwood et al., 2010).

Campus principals indicated in a 3-year qualitative study the need to be creative in supporting teacher collaboration (Drago-Severson & Pinto, 2006). Out-of-the-box methods, such as seeking grants to fund collegial learning structures, providing new teacher support groups, and utilizing paraprofessionals or substitute teachers to carve out collaborative time to support professional learning surfaced in the study (Drago-Severson & Pinto, 2006). The value of collegial collaboration lies in deepening content and pedagogical knowledge as well as enabling reflection and changing mental models (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; Helsing, Howell, Kegan, & Lahey, 2008).

Focusing Support at the Classroom-Level

The classroom, the heart of any school change, takes center stage in a seminal study videotaping math classrooms in the United States, Germany, and Japan. This study indicates the vital role of the teacher in the classroom (Stigler, Gonzalez, Kawanaka, Knoll, & Serrano, 1999). The researchers videotaped Grade 8 math classes in 81 U.S. classrooms, 100 German classrooms, and 50 Japanese classrooms. The

content of U.S. math classes appears to require less high-level thought than classes in the other countries. While math students in the U.S. receive procedural instruction for doing math, Japanese students' learning centers on conceptual knowledge. Although all three countries' teachers are familiar with features called for in mathematics reform, only Japanese classrooms reflect those features consistently in classroom practice (Stigler et al., 1999).

Murray (2013) gives several suggestions for how school leaders support teachers' honing of craft in the classroom. Sustained learning opportunities with allocation of time during the school day serves to support teachers' learning and improvement. Collaboration surfaces as an effective method for collegial dialogue and reflection on teaching strategies as well as content. School leaders can provide structural supports such as time for professional learning through scheduling and coverage of classrooms (Murray, 2013).

The Context of Rural Education and Change

Before leaving the topic of school change, it is imperative to this study to examine change in the context of rural schools. The volume of rural school research is lacking in comparison to suburban and urban counterparts. When examining schools classified as rural, it proves helpful to refer to locale code definitions from the National Center for Education Statistics (NCES). In 2005-2006, the NCES updated these codes due to advances in geocoding technology that allow more accuracy in address locations (Keaton, 2012). Also at that time, the Office of Management and Budgets altered their definitions of metropolitan and non-metropolitan areas. These definitions, updated every ten years based on Census data and depicted in Table 2, fall into categories as follows:

city, suburban, town, and rural. Within each category, three subcategories exist. For city and suburban subcategories include large, midsize, and small. Rural and town subcategories include fringe, distant, and remote (Keaton, 2012).

Table 2

Classificatory Scheme for Locale Codes in U.S. Census Data

City, Large	Territory inside an urbanized area and inside a principal city with population of 250,000 or more.
City, Midsize	Territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000.
City, Small	Territory inside an urbanized area and inside a principal city with population less than 100,000.
Suburb, Large	Territory outside a principal city and inside an urbanized area with population of 250,000 or more.
Suburb, Midsize	Territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000.
Suburb, Small	Territory outside a principal city and inside an urbanized area with population less than 100,000.
Town, Fringe	Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area.
Town, Distant	Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area.
Town, Remote	Territory inside an urban cluster that is more than 35 miles of an urbanized area.
Rural, Fringe	Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster.
Rural, Distant	Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster.
Rural, Remote	Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster.

Note. Urban-Central Locale Codes, U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2010.

Greenough and Nelson (2015) voice concern over the definition of rurality in education. Since schools are classified by the U.S. Department of Education (U.S.D.E.) according to density of population and proximity to urbanization, a half-mile can determine the difference between a Rural Fringe and a Rural Distant district (Keaton, 2012).

Dr. Mary Herzog (1998), former chair of the American Education Research Association's Rural Education Special Interest Group, writes of the negative image rural

education connotes. Fraught with stereotypical images, rural education issues are rarely integrated into teacher preparation areas which usually train teachers to work in standardized American schools. Often defined from an urban perspective subject to policies generally written for urban schools, rural schools remain neglected (Herzog, 1998).

Indeed, the district in the current study falls under the ambiguity of definitions published by the U.S.D.E. Lying just on the 5-mile border of an urbanized area, but not an urban cluster, this district is situated in a community that does not consider itself as rural. With amenities a mere five minutes away and an elementary school within grounds of an Air Force base that trains pilots from around the world, the district contains an international community with experiences and resources typically not afforded to rural districts.

In a keynote speech to the Rural Education National Forum in Columbus, Ohio, former United States Secretary of Education Arnie Duncan (2014) addressed rural barriers. Duncan spoke of challenges to rural schools that include funding, technology, teacher recruitment and retention, STEM (Science, Technology, Engineering, and Math) education, and lack of parental engagement. However, former Secretary Duncan also spoke of numerous reasons why rural educators can be hopeful for the future: (a) innovation and creativity demonstrated by rural schools, (b) collaborative partnerships often formed by rural districts, and (c) the outstanding values and levels of commitment from rural educators (Duncan, 2014).

The U.S.D.E. published a report in 2007 titled *Status of Education in Rural America* (Provasnik et al., 2007). While this literature review does not attempt to cover

the wealth of findings from the report, several findings are key to this study. They include the following disparities:

- Rural schools have fewer parents expecting their children to receive at least a bachelor's degree in college.
- Rural areas have more students who do not work or attend school, and college enrollment rates are lower in rural areas.
- The percentage of adults with college degrees is lower than suburban and urban areas.
- Rural schools receive less local funding than urban and suburban schools.
- More schools that are rural suffer from declining enrollment.
- Rural students have less access to technology.
- Rural schools have fewer severe discipline issues.
- Rural teachers earn less than their urban and suburban counterparts.
- Rural schools have difficulty filling teaching positions (Provasnik et al., 2007).

When examining research in rural education, a conundrum appears. The Mid-Continent Research for Education and Learning (MCREL), conducted a review of rural education research and finds a lack of rigor in most research studies (Arnold, Newman, Gaddy, & Dean, 2005). Research efforts in rural education suffer from limited funding and the lack of a common understanding and definition of rurality thus making comparisons of districts difficult.

Because rural is a theoretical construct, it is important for researchers to reach consensus on both a theoretical and an operational definition of rural education (Koziol et al., 2015). Guidelines are needed to ensure researchers fully understand how the rural definition impacts a study's design, sampling, and generalizability. Quantitative

statistics are often difficult to calculate due to violations of normality assumptions, low sample sizes, and difficulty of replication (Koziol et al., 2015).

Originally reported in 1985, an article reprinted by Helge (2010) documents the first comprehensive national effort to set an empirical study agenda for establishing priorities in rural education research in the United States. A survey written by the National Rural Education Research Consortium seeks to determine research priorities for rural schools (Helge, 2010). Four hundred and sixty-one responses, sorted by theme, identified nine areas as priorities in rural education research: rural school effectiveness, governance and finance, staff training needs, teaching styles and incentives, field-based personnel preparation, teachers' preservice preparation, personnel recruitment and retention, school-community interaction, and rural versus non-rural school needs (Helge, 2010).

In the report *Why Rural Matters 2013-2014: The Condition of Rural Education in the 50 States* (J. Johnson, Showalter, Klein, & Lester, 2014). U.S.D.E. data from the National Center on Educational Statistics and the U.S. Census Bureau were tabulated for percentage of rural districts in each state falling into locale codes of rural fringe, rural distant, and rural remote. Categorized results were weighted by the importance of rural education, the diversity of rural students and their families, socioeconomic challenges, educational policy context, and educational outcomes of students. Findings from the study include out-pacing growth in the number of students attending rural schools when compared to student growth in non-rural enrollments. Growth in rural schools is also increasing in levels of socioeconomic disparities and diversity. The authors caution that

failure to understand and address the complexity of needs of rural education is an imperative issue to the national educational landscape (J. Johnson et al., 2014).

Returning to MCREL's review of research in rural education, the authors find two types of rural research: research that is primarily about the rural setting, and research conducted in a rural context with no apparent intent to investigate or explain rurality influences on education (Arnold et al., 2005). Findings indicate ten common categories of topics researched in rural studies, including (a) programs and strategies for special needs student in rural schools, (b) instruction, especially the use of technology in instruction, (c) school safety and discipline, (d) student life and career planning, (e) factors influencing academic achievement, (f) students' attitudes and behaviors, (g) educational leadership, (h) staff recruitment and retention, (i) teacher preparation and professional development, and (j) teacher beliefs and practices. The authors also note the belief that the rural situation as an inherent quality is not substantiated in the research (Arnold et al., 2005).

A study of rural schools in Colorado examined the differences in administrative adequacy in implementing the *No Child Left Behind Act of 2001* (*NCLB*) (U.S.D.E., 2002) and whether rural districts are at a disadvantage in implementing *NCLB* guidelines (Yettick, Baker, Wickersham, & Hupfeld, 2014). No significant differences were found between rural and non-rural districts' frustrations in dealing with general and compliance reporting requirements of *NCLB*, supplement-not-supplant rules, and supplemental educational services. However, findings indicate rural districts are at a distinct disadvantage in funding of programs based on student enrollment, staffing of personnel to fulfill compliance with federal programs, shared-service arrangements in

which districts pool funding to provide services, and professional development requirements (Yettick et al., 2014).

Sherwood (2000) posits there is minimal evidence on how rural schools differ from urban schools. Rigorous and sound rural research exists as a gap in education research (Arnold et al., 2005; Sherwood, 2000). There are several reasons Sherwood (2000) attributes for this gap: (a) lack of knowledge on urban/rural differences, (b) lack of appeal to education researchers when compared to urban research, (c) inadequate networking of research communities focused on rural education research, (d) the small number of research professionals devoting their careers to rural education research, (e) lack of consensus on rural education's domain and research priorities, and (f) lack of urgency that usually accompanies urban education research.

Johnson and Howley (2015) review three national education policies and their impact on rural schools through critical policy analysis: (a) the *Race to the Top* grant program (U.S.D.E., 2009), (b) the *School Improvement Grant (SIG)* program (Federal Register, 2010), and (c) the Rural Education Achievement Program (REAP, U.S.D.E., 2003). This study applies critical theory as a scholarly framework to examine policy as situated in various contexts and the resulting power dynamics. The authors find challenges in rural schools exist in other schools in general, but rurality often exacerbates characteristics, while one-size-fits-all reforms are often problematic. The findings also include strengths of rural schools including smaller school size and stronger community relationships, better extracurricular activity rates, greater school safety, smaller class sizes, less tracking, less bureaucracy, and easier implementation of pedagogical innovation (Jimerson, 2006, p. 7 as cited by Johnson & Howley, 2015, p.

226). Challenges to small schools include professional development, specialized services, and fiscal capacity. Teachers often return to work in rural schools if they grew up in a rural school. This makes finding specialized teachers difficult and places more importance on professional learning and development. The three national policies reviewed were deemed appropriate examples of what the authors refer to as “ignorance of rural realities” (p. 235). Suggestions include advice to rural educators on being sensible enough to avoid the fads and conventional thinking employed in claims of best practices and global competitiveness (J. Johnson & Howley, 2015).

Temple (2009) addresses rural issues relative to early childhood education. Children from rural areas are less likely to participate in preschool, pre-kindergarten, and other early education programs. This can result in lower school readiness, students struggling to catch up during their school career, and increased drop-out rates. The average rate of non-participation in early education programs among the entire nation is 25 percent. However, when examining rural areas, this percentage increases to 32 percent non-participants (Temple, 2009).

While the literature on definitions of rurality, strengths of rural schools, and weaknesses inherent to the rural setting may remain ambiguous, the literature on the process of change in small and rural districts reflects nuanced differences based on the situational environment of such schools. A case study of a remote district undergoing reform in Australia interviewed the superintendent and examined student performance data to determine most effective district strategies for supporting change. The researcher concludes that relationships in rural schools engage stakeholders and build credibility and trust for district innovations (Clarke & Wildy, 2011).

In many regards, teachers and administrators in rural schools have issues in common with their suburban and urban counterparts. A two-state rural study examines the influence of the federal *NCLB Act of 2001* on the decision-making of rural principals and teachers about curriculum and instruction (Powell, Higgins, Aram, & Freed, 2009). Researchers interviewed 76 elementary teachers in rural Maine on changes in teachers' curriculum choices since implementation of *NCLB* and any perceived benefits to students. Also surveyed were 101 elementary principals in rural Missouri schools. Findings indicated a statistically significant increase in the amount of time spent on reading instruction. Less time was spent on social studies and science curriculum than on math and reading. Seventy-two percent of rural principals said their decision-making on professional development has changed dramatically in providing support for teachers to raise test scores, with reading as the primary emphasis. Fifty-one percent indicated their districts have implemented benchmarking exams in reading and math. When asked what influences educational vision for both the short-term and long-term, the majority of principals cited meeting federal accountability goals as the greatest influence. Nearly sixty percent of teacher respondents indicated NCLB impacts student motivation negatively. Both teachers and principals indicated an increase in their schools using scripted curriculum programs and utilizing direct teaching more (Powell et al., 2009).

Maxwell, Locke, and Scheurich (2013) report on district leadership in three rural districts in Texas to determine why the districts' superintendents chose rural schools to lead and how they approach equitable opportunities for rural students. Superintendents in the study spoke of feeling the desire to affect change in a manner that yields the most

impact. These participants also perceived that small, rural schools offer contexts for more coherence due to small staff size (Maxwell et al., 2013). The potential of impact may come at a cost. Copeland (2013) reports on the rural superintendency of northeastern Colorado districts and interviewed school board members of districts who conducted superintendent searches in the previous two years. Board members reported looking for characteristics in candidates that may be common to larger districts such as management skills and communication skills. However, the board members felt rural superintendents face higher standards and expectations because they cannot be invisible and neglect community involvement and responsibility as an urban superintendent might (Copeland, 2013). Other factors of negative connotation in rural districts include lack of resources to implement state reform mandates (Jennings, 1999), feelings of isolation due to remoteness (Burton, Brown, & Johnson, 2013), and dependence upon other districts because of the necessity of shared services (Hargreaves, Parsley, & Cox, 2015).

With thirty-two percent of U.S. schools classified as rural and twenty-four percent of the nation's students attending rural schools, this setting can also offer unique characteristics (Greenough & Nelson, 2015). While rurality often implies a declining student population, the opposite exists in some rural districts. Sixty-two percent of rurally classified schools are actually Rural Fringe schools, located in either suburban communities or bedroom communities that enjoy rapid growth. The average socioeconomically disadvantaged student population in Rural Fringe schools exists as 39 percent. The stereotypical country school may not be a fitting description to these schools (Greenough & Nelson, 2015).

A study of rural principals reports rural schools experience high expectations for staff and students, a flexibility in structural supports for learning that larger schools may not enjoy, and a tighter alignment of instruction to the close staff relationships (Barley & Beesley, 2007). Chance and Segura (2009) report in a case study on school reform in a rural high school collaboration between staff exists more comfortably, parent relationships with the school appear stronger, and the school enjoys tremendous support from the community. The authors also note the culture of care in this rural school (Chance & Segura, 2009). C. B. Anderson (2008) notes in a case study of six rural schools that the role of a strong teacher in a rural school has the capability to be transformative. In the small schools in the study, teachers utilize distributed decision-making and influence the schools' achievement of goals (C. B. Anderson, 2008).

Forner, Bierlein-Palmer, and Reeves (2012) examined district leadership in rural schools. The researchers report on high-performing rural districts who were successful in increasing test scores during a superintendent's tenure. To determine if any superintendent behaviors aligned to Marzano's and Waters's (2009) six correlates of effective leadership practices, seven superintendents were studied. For each district, interviews were conducted with the superintendent, the high school campus principal, one teacher, and one school board member. Cross-case findings include commonalities in expectations such as a belief and understanding that all students can and will achieve academic success, every class deserves a high quality teacher, and a determination to create resources where few exist (Forner et al., 2012).

In an article confronting rural stereotypes, the author recommends three changes to improve the plight of rural schools (Bryant, 2010). First, the federal government

should cease looking at schools as static, monolithic entities. Rural schools are different from suburban and urban schools and, while many issues share commonalities, rural schools should not be treated as if they suffer from the same challenges and issues. Second, the United States government should devote time and money to rural education. One example would be to have an undersecretary in the Department of Education who is devoted solely to rural schools. Finally, federal programs such as *NCLB* (U.S.D.E., 2002) and *Race to the Top* (U.S.D.E., 2009) must speak to the diverse needs of schools. As long as property taxes are the primary funding source of schools, the researcher posits rural districts will always be funded inequitably (Bryant, 2010).

Summarizing this section on the context of rural education and change processes in rural schools, more research that is rigorous and replicable is needed (Arnold et al., 2005; Koziol et al., 2015). Rural schools share many common interests and issues with their urban and suburban counterparts (Sherwood, 2000; Yettick et al., 2014), and rural school leaders can offer coherence and greater impact in the small school setting (Maxwell et al., 2013). Providing quality professional learning in rural schools is a common challenge (Burton et al., 2013; J. Johnson & Howley, 2015).

Regardless of school size or location, professional learning of high quality provided to teachers in a meaningful way becomes the obligation of both the district and school administration. Yet, many failures occur amidst good intentions from district decision-makers who fail to understand the amount of time and types of support that must be offered to teachers to implement substantial change that results in increased student learning (Joyce & Showers, 2002). The literature on professional development

offers insight into what is most effective for teacher learning, implementation of teacher learning, and resulting increases in student achievement.

Professional Learning and Development

Professional learning and development stand paramount to school change, or as Hord and Roussin (2013) suggest, “All change is based on learning and improvement is based on change” (p. 2). The literature speaks to the key role effective professional learning plays in the change process.

Guskey (2000) defines professional development as "processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students" (p. 16). Professional learning is a process that is intentional, ongoing, and systematic (Guskey, 2000).

Research on professional learning of educators is plentiful, but does not exist without validity and reliability questions. Hill, Beisiegel, and Jacob (2013) claim recent professional learning studies lack rigor of design and argue for more stringent guidelines in research. A five-stage approach to a more rigorous set of guidelines, according to the authors, would involve an initial one-site pilot to ensure feasibility of the professional development program with indicators of teacher and developer perceptions measured. Then a randomized control study on the same professional development program content would ensue, but would vary features of delivery with indicators of teacher and developer perceptions and proximal measures of participants’ knowledge and practice in the classroom. For example, four randomized groups from multiple locations might be subdivided into smaller groups with different training conditions such as length of training time, mode of delivery, or amount of time allowed between trainings

for implementation. The model then calls for an efficacy trial of moderate size with indicators of student outcomes and standardized measures of teacher knowledge and practice in the classroom. Following would be a scale-up trial with randomized groups and the same measurement of indicators of student outcomes and standardized measures of teacher knowledge and practice in the classroom. Finally, the authors recommend a meta-analysis of all stages' results be compiled to evaluate the effectiveness of a professional development program (Hill et al., 2013). While most research on professional learning of educators does not measure up to such a rigorous framework, the literature is still worthy of examination.

As Kisa and Correnti (2014) found in their quantitative survey study of nearly 1,800 teachers, professional development serves as an important reform tool improving student learning. One finding in Bryk's (2010) work with Chicago school reform was to focus on instructional change through high-quality professional learning in school reform because of the impact on student learning.

To create effective professional development to influence teachers' practices in the classroom, Hord and Loucks (1980) recommend professional learning occur as long-term and ongoing. Joyce and Showers (1980, 1981, 1982, 1983) identify essential elements of professional development as presentation of theory, modeling or demonstration, practice in simulated settings, and the use of instructional coaching for application in the classroom as depicted in Figure 2. Darling-Hammond and Richardson (2009) endorse professional development that includes content and pedagogical knowledge, incorporates hands-on opportunities, and enables reflection. Helsing,

Howell, Kegan, and Lahey (2008) validate professional learning that changes mental models through reflection.

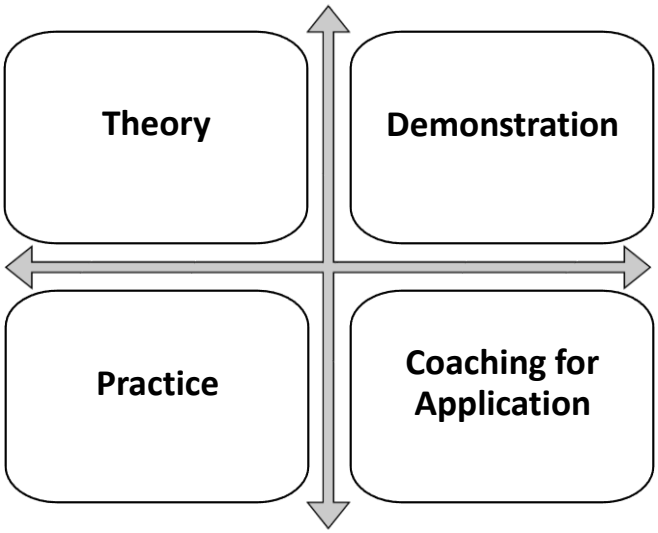

Figure 2. Components of effective professional development (Joyce & Showers,1980, 1981, 1982, 1983).

Professional learning in mathematics points to several key factors for development of content knowledge and capacity to effectively teach math concepts. Developing Mathematical Ideas, a K-8 national professional development program based upon shared inquiry of practice, reports on sustained professional development over time (Bell, Wilson, Higgins, & McCoach, 2010). Utilizing a pre-test/post-test study design with experimental and control groups, ten study sites examined the effect of sustained professional learning over time on teachers' mathematical knowledge for teaching. Two modules from Developing Mathematical Ideas focusing on ideas of numeracy and operations were delivered to experimental groups over an average of twenty-one weeks. Experimental participants' post-test scores indicated statistical significance in increased development of mathematical knowledge for teaching as assessed by a multiple-choice and open-ended assessment developed for the study.

Findings from the study indicate value in content-specific professional learning opportunities that are long-term and practice based (Bell et al., 2010).

Bubb and Earley (2009) conclude in a case study of nine schools examining steps leaders take to make professional learning most effective that district and school leadership also play a role in effective professional learning. Findings indicate teachers need a clear understanding of the goal for professional learning and strong leaders who help develop the vision and keep it alive during learning efforts (Bubb & Earley, 2009).

Research on professional learning in rural schools is not as plentiful or as rigorous as professional learning research in urban settings with large sample sizes. However, there exist some commonalities. Strong teacher leaders and active administrators proactively addressing instructional leadership made a difference in one rural school in North Carolina (Ringler & O'Neal, 2012). This sheltered instruction professional development initiative, designed to benefit non-English speaking students, began with district and school administrators setting a vision for teachers of an engaged classroom rich in academic vocabulary. Teachers were trained and peer-coached to ensure fidelity of implementation. Teacher leaders implementing the methods then became coaches for additional faculty to learn and implement strategies to sustain the school initiative. Through the nurturing of peer coaching relationships, proactive instructional leadership from administration, and a layered approach to ongoing professional learning support, the rural district made a positive systemic change in how instruction was delivered (Ringler & O'Neal, 2012).

Barley and Beesley (2007) surveyed principals of rural schools concerning the top factors perceived to make the most difference in positive student achievement

gains. Conclusions point to professional development, high expectations for both students and staff, and structural supports for learning such as Response to Intervention programs and additional learning time created through tutoring. Also indicated as important were aligning curriculum, instruction and assessment with instruction differentiated based on student need (Barley & Beesley, 2007).

A project conducted through the National Center for Research on Rural Education (Glover & Nugent, 2011) investigated differences in professional learning for rural and non-rural teachers. Training included in the study encompassed topics of reading, science inquiry, math, and the use of data to inform instruction. To discover how rural and non-rural teachers differ with respect to their professional development participation, researchers surveyed teachers on their perceptions and classroom practices pertaining to training foci. The study sample included 268 rural Grades K-5 teachers and 327 non-rural Grades K-5 teachers. Findings indicate while rural teachers spend more clock hours in professional development (PD), non-rural teachers spend more time on practice/feedback opportunities in the classroom. Other findings point out non-rural teachers take more college courses and attend more conferences. Non-rural teachers also have more opportunities for mentors, coaches, lead teachers, and observers to assist with training follow-up. However, rural teachers have more opportunities for collaborative interaction during PD experiences and participate in more long-term PD experiences. Interestingly, the authors find neither rural nor non-rural teachers are particularly knowledgeable about content and pedagogy (Glover & Nugent, 2011).

Initiatives such as the Highly Qualified requirements of *NCLB* (U.S.D.E., 2002) often assume there are well-qualified teachers waiting in the wings to take the jobs of any teachers who are not highly qualified. But, in reality, in many rural schools, recruitment of teachers is problematic, making investment in intensive professional learning imperative for current teachers. A study sponsored by the National Science Foundation's Appalachian Math and Science Partnership (Barrett, Cowen, Toma, & Troske, 2015) examined a professional learning initiative to increase teacher capacity and expertise in content knowledge. The study sample consisted of 52 rural districts who partnered with ten institutes of higher education to write, develop, and deliver math/science professional learning sessions. The treatment consisted of a minimum of four days of intensive math teacher training and was measured by student achievement scores on math exams prior, during, and after the study. Students who had teachers participating in the study had higher math scores during the initial year of teacher training and the effect carried over into the second year. However, by the third year, the difference was not statistically significant between students of treatment teachers and control-group teachers. These findings indicate benefits from professional learning may lessen if the teacher does not continue learning (Barrett et al., 2015).

Professional Learning and Associated Theoretical Underpinnings

Professional development models and theories abound in the research literature. Eun (2008) argues that a theoretical framework has not been adequately grounded for application to teacher education in enhancing and building professional knowledge and skills in effectively reaching all students. However, Vygotsky's (1978) sociocultural theory is grounded in four mental development concepts. First, the social origin of

mental functions explains how an individual's mental functions are a result of social interactions and influences. Second, unity of behavior and consciousness explains the psychological development of individuals as a result of societal interactions. Third, mediation is the application of specific mechanisms that provide the integration of mental function, behavior, and consciousness. Finally, psychological systems indicate evidence of development. Vygotsky's (1978) work indicates mental functions must be external and social before being internalized.

When applied to professional learning of educators, sociocultural theory (Vygotsky, 1978) impacts the ways in which a teacher learns to facilitate best practices in the classroom. Whether through training, mentorship, collaborative dialogue, or instructional coaching, teachers learn through social interaction and establish their mental processes of teaching based upon those interactions. Vygotsky's (1978) notion of the zone of proximal development (ZPD) postulates a prime learning zone is established through a more capable colleague and a less capable teacher partnering with the purpose of reaching a higher potential development level. In this regard, professional learning must accurately assess the current needs, capacity, and goals of participant teachers in order to result in dynamic development. This theoretical framework underpins educator learning through professional learning communities, instructional coaching, follow-up support, mentoring, and other forms of job-embedded professional learning (Eun, 2008).

Gabriel's (2010) work also features a theoretical framework based on Vygotsky's (1978) sociocultural theory. This study of six beginning teachers' perspectives of the professional learning available at their school utilized interviews during the first three

years of teaching. The author proposed a predictable trajectory of development based on Vygotsky's (1978) ZPD. First-year teachers were in a technical, information-gathering phase. These new teachers cited collegial conversations and Saturday workshops as the most effective means of professional learning for them. Second-year teachers valued professional learning opportunities that provided opportunities for reflection on classroom practice and colleagues who practiced listening as opposed to collegial problem-solving. Frequent observations and constructive feedback by a mentor were also considered useful. Third-year teachers viewed the opportunity to observe other teachers as the most productive professional learning and were beginning to see the bigger picture involved in educating students. The author concludes that differentiated and sociocultural-oriented professional development based on specific needs of the new teachers can assist with developing teachers' professional capacity while also serving to retain quality candidates in the profession (Gabriel, 2010).

Taking the theory of sociocultural learning into a more defined area relative to professional learning, Shabani, Khatib, and Ebadi (2010) examined ZPD applied to teacher professional development. In Vygotsky's own words, ZPD "is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). The teacher as learner must be willing to move from the current ZPD to a more advanced ZPD in the teaching profession. Activities that can help accomplish that forward motion include defining professional goals, working collaboratively with peers, observing an exemplary teacher's model of teaching, working with mediatory artifacts

such as technology or student data, and receiving instructional coaching (Shabani et al., 2010). These activities all can align with the professional development models of individually-guided learning and mentoring advocated by Guskey (2000). Instructional coaching can easily align with Vygotskian (1978) ZPD and the idea of a more advanced adult scaffolding of learning for a less-experienced or less-expert educator (Eun, 2008).

Opposed to the consideration of sociocultural theory (Vygotsky, 1978) solely applied to professional learning, De Valenzuela, Connery, and Musanti (2000) consider it too simplistic to adequately support theoretically the education of teachers in the field of special education. These authors argue that sociocultural theory is an incomplete theoretical model when applied to teacher education and over-simplistic to address the pedagogical and content-related needs of professional learning in preparing for application and implementation of best practices in the special education classroom. While the educational system is very susceptible to the societal issues of the world, it must be equipped with the knowledge of overcoming economic and political relationships in the larger society. The current emphasis in education lies in providing equal opportunities to children regardless of economic or ethnic background. But to De Valenzuela, Connery, and Musanti (2000) this approach fails to consider equitable opportunities through a multicultural perspective.

The ZPD (Vygotsky, 1978) offers a theoretical basis for professional learning that is collaborative in nature and results in moving the educator from the current level of proficiency to a more advanced level (Eun, 2008). Rich in providing guidance for professional learning, the literature leaves little guesswork as to what works most effectively. Bryk (2010) summarized the literature nicely when he postulates that

teachers need to experience efficacy in building their professional capacity through professional learning, “Schools are only as good as the quality of faculty, the professional development that supports their learning, and the faculty’s capacity to work together to improve instruction” (Bryk, 2010, p. 24). The district and school responsibility in providing quality professional learning for teachers lies beyond the workshops and trainings. Responsibility lies in the ongoing support and spirit of continuous improvement. One means of providing ongoing professional learning support occurs through instructional coaching.

Instructional Coaching as Professional Development

Guskey (2000) defines several models of professional development. Training, the most common form of professional learning, usually takes place through group-based activities in which ideas and expertise are conveyed by one or more presenters. Observation/assessment utilizes collegial observation and offers feedback that can be advantageous to the one observing and the one being observed. Involvement in a development/improvement process, such as writing curriculum or developing a strategic plan to address instruction, can also act as a worthwhile professional learning model. Other models defined by Guskey (2000) include study groups, inquiry/action research, individually-guided learning activities, and mentoring. Instructional coaching can fit into the individually guided model in which an individual determines her own learning needs, sets a goal, and takes action to meet the goal. But instructional coaching can also fit into the mentoring model in which an experienced educator is paired with a less-experienced novice (Guskey, 2000).

There is no one definition of instructional coaching, and indeed, coaching can take on many roles. Yopp et al. (2011) broadly defines a coach as someone working collaboratively with a teacher to improve the teacher's instructional practices. Neumerski (2013) describes a coach as a form of school-based professional development providing differentiated and non-evaluative classroom support. Models of coaching also run a continuum of interpretation from peer coaching (Showers & Joyce, 1996), to cognitive coaching (Garmston, Linder, & Whitaker, 1993), strengths-based coaching (Sweeney, 2011), change coaching (Neufeld & Roper, 2003), results coaching (Kee, Anderson, Dearing, Harris, & Shuster, 2010), and instructional coaching (Marzano & Simms, 2013). Similar to the age-old debate whether to call a tomato a /təˈmɑːtəʊ/ or a /təˈmeɪtoʊ/, the present study refers to instructional coaching as a combination of Yopp's (2011) and Neumerski's (2013) two definitions: An instructional coach provides differentiated professional learning to teachers in a job-embedded manner through activities such as goal-setting, observation, reflection, instructional planning, inquiry of student learning, and a host of other instructional responsibilities and roles (Neumerski, 2013; Yopp et al., 2011).

Pioneers with ground-breaking seminal work on the effects of peer coaching, Bruce Joyce and Beverly Showers reported on teachers' transfer of professional learning to the classroom (1980, 1981, 1983, 1996, 2002). Their work spans more than thirty years and finds coached teachers practice strategies learned in professional development more often (1980), adapt the strategies more appropriately to the needs of students (1981), retain and increase skills over time (1996), use meta-cognitive skills to reflect (1983), and are more likely to explain the purpose of strategies to their students

(2002). Through several syntheses of research, their work contributes to the determination of coaching as an effective means of professional learning (Joyce & Showers, 1980; 1983; Showers, Joyce & Bennett, 1987). Active coaching closes the gap between professional learning and transfer to the classroom (Griffin, 1983; Showers, Joyce, & Bennett, 1987).

Instructional coaching assists teachers in transferring skills learned in professional learning to enactment in the classroom in two ways: (a) horizontal transfer, and (b) vertical transfer (Joyce & Showers, 1983). Horizontal transfer connotes the teacher's ability to transfer skills learned in training directly to the classroom. Vertical transfer suggests a higher level of learning in which the teacher adapts, enhances, or transforms learning gained in training for application with students (Joyce & Showers, 1983). In other words, vertical transfer means the teacher must conform the training to the classroom and the particular set of students in the classroom.

Horizontal transfers and vertical transfers to the classroom do not happen automatically, but require 10-15 or more practice episodes for transference to occur (Joyce & Showers, 1981; 1982). These practice episodes often initially occur in training, but find support later through collaborative efforts with a coach. In this way, coaching as a training device helps build in practice and reflection with continuous problem solving until vertical transfer is achieved (Joyce & Showers, 1981; 1982). This new learning remains fragile in the teacher's repertoire of skills and needs continued support through coaching (Neuberger, 2009).

Instructional coaching usually takes place in a three-step cyclical pattern. First, a preconference between the teacher and coach occurs and a desired instructional goal

or student outcome is identified. Often the preconference will include the coach observing the classroom. Formulating an action plan and envisioning the plan's enactment with students while the coach supports serves as the second stage. Finally, a reflective post conference assists the teacher and coach in celebrating successes and identifying future goals (Yopp et al., 2011). Through thoughtfully designed professional development and coaching used during follow-up support, implementation of professional learning rockets from a possible five percent transfer rate without coaching, to a possible 95 percent implementation level with coaching (Joyce & Showers, 2002).

Teachers benefit when they are supported through the process of change. The coaching relationship provides the social context by which teachers as learners set targeted goals. The coach provides gradual release through a Vygostkian method of modeling, making recommendations, asking probing questions, and praising. Collet (2012) reports on the relationship of the coach in offering support and feedback to the teacher. Collet's mixed methods study was conducted in a university clinic context with three coaches and 46 teachers who received coaching for tutoring students over the course of three semesters. Data were collected on the frequency of specific coaching techniques through checklists and interviews. Coaching techniques evolved over time from being more directive to affirming independent decisions of the teachers. Coaches were able to gradually release more autonomy to the teacher as each teacher became more proficient in their own ZPD. The study's findings suggest instructional coaching as a sociocultural means of moving teachers to a higher level of professional development (Collet, 2012).

One of the most comprehensive pieces of literature on instructional coaching's impact on the teacher comes from Cornett and Knight (2009). This meta-analysis, written as the final chapter in the book *Coaching: Approaches & Perspectives,* examined 254 journal articles, dissertations, reports, and presentations related to coaching. Conclusions drawn from this review include the benefits of coaching as positively influencing teacher attitudes, increasing job satisfaction, and increasing teaching efficacy. Cornett and Knight (2009) also conclude that coaching prompts better teaching practices and increases student achievement through the teacher's use of research-based strategies and reflection. In the next section, I examine some of the specific benefits of coaching.

Collegial and Collaborative Relationships

Referring back to Leithwood's seminal work (2010), the third item that noted positive relationships between students, staff, and colleagues proves to be another common factor in successful school change. Sheppard and Brown (2009) conducted a five-year case study examining the central office's role in improving student learning and found that a shared vision in the context of a collaborative culture is key to accomplishing change. A culture of learning and professionalism echoes in the literature (Cannata, Taylor-Haynes, & Smith, 2013; Giles & Hargreaves, 2006; Murphy, 2013). Depicted as an essential component in the architecture of school improvement, collaboration and professional learning build capacity (Murphy, 2013). In a four-year case study of three innovative schools, Giles and Hargreaves (2006) examined how school change approaches sustainability. Researchers report collegial relationships and attitudes key to the spirit of student-centered teaching (Giles & Hargreaves, 2006). A

comparative case study of four high school campuses indicates the positive relationships among faculty influence the relationships between teachers and students and may result in greater student ownership of learning (Cannata et al., 2013). In a case study of thirty elementary campuses in a large, urban district, Parise and Spillane (2010) found collaborative dialogue essential for effective professional learning. Collaborative dialogue and sustained support through coaching may result in more value to the teacher (Bubb & Earley, 2009).

Hord and Roussin (2013) note change is more successful when enacted through a social context of relational trust, an integral component to instructional coaching. This supposition resonates in quantitative findings. In 2009, Darling Hammond, Chung Wei, Andree, Richardson, and Orphanos conducted a quantitative study of over 40,000 teachers in which respondents indicated teachers' professional learning and capacity-building proved most effective when collectively practicing inquiry into instructional practices based on data. Data-driven inquiry over time connects to practice while building collegial relationships (Darling-Hammond et al., 2009). A study of thirty-two leading edge teachers in Grades 7-8 in four Canadian schools found curricular reforms most effective when reformers take into account the emotional dimensions of teaching and learning (Hargreaves, 1998). Findings include positive relationships between teachers and students motivates teachers to maximize efforts assisting students.

The concept of collegial dialogue, an additional component of instructional coaching, serves multiple roles in improving professional learning. Dialogue provides lateral capacity building through sharing of practices (Fullan et al., 2004) and builds pedagogical capacity in colleagues (Fullan & Levin, 2008; Leithwood, 2010). In the work

of Chicago school reform, one aspect of the 15-year longitudinal study of the district's schools delineated factors between successfully improving schools and failing schools. Improving schools had teachers who experience efficacy, work together to improve instruction, and gain feedback into best practices for building professional capacity (Bryk, 2010). A quantitative study of Career and Tech teachers (n=277), reports a statistically significant relationship between supportive collegial capacity building and the ability of teachers to assist students in learning (McCharen, Song, & Martens, 2011).

A study focusing on the Pennsylvania High School Coaching Initiative developed by the Pennsylvania Literacy Network considered a comprehensive instructional reform that included instructional coaching in literacy and math as well as professional learning for teachers, coaches, and leaders (Brown et al., 2007). The mixed methods study collected data from classroom observations, interviews, surveys and questionnaires. Findings indicate one-on-one work and dialogue between a coach and a teacher influence the teacher's use of strategies learned in professional development. Coaches and teachers who reported a high frequency of working together also reported strong professional community atmosphere at their respective schools. These findings suggest value in the collegial collaboration of the coaching relationship (Brown et al., 2007). Likewise, collaborative relationships between coach and teacher can lead to greater development of school norms of collegiality and experimentation (Joyce & Showers, 2002).

Focus for professional learning is sometimes directed to the teachers who would not change instruction on their own, but might do so with assistance from a colleague. This reflects the principle of Vygotsky's (1978) ZPD in which a more capable peer

assists a less capable peer in achieving new learning. This new learning is at the root of educational change and is highly dependent upon collaboration and collegiality (Weir, 1992).

While instructional coaching benefits collegial collaboration, it also influences other aspects of the learning organization such as the pedagogical capacity of the teacher and the school. The terminology of building capacity appears frequently in change literature and deserves a closer inspection.

Building Capacity

If all change is based on learning (Hord & Roussin, 2013), it makes sense to investigate the teacher as learner as the change link to the classroom (Fullan, Bennett, & Rolheiser-Bennett, 1990). Defining capacity in terms of school change, Tinney (2014), a superintendent in British Columbia, Canada, summarizes the meaning of building capacity in the blog he maintains.

> …it's sharing in a vision, co-creating and empowering people in pursuit of that vision. It's checking in with them to see how they are doing and if they need more guidance, support, or just feedback on their ideas. It's trusting that as a collective, the output is so much richer than any one individual can do. It's holding each other accountable for results and celebrating our successes and being our own critical friends. In short, it's like a team all pulling in one direction. (Paragraph 10)

What Tinney (2014) describes resonates in the literature on building instructional capacity. A five-year case study of four campuses, conducted by Linn, Gill Sherman, Vaughn, and Mixon (2010) in a large urban district surveyed teachers to ask what type of professional development proves most impactful to classroom instruction. Findings indicate effective professional learning is planned, intentional, aligned to district and campus goals, cohesive, and results in a clear vision regularly and purposefully

communicated at all levels (Linn et al., 2010). S. M. Johnson (2012) postulates building instructional capacity is not solely about improving teacher quality, but also building the capacity of the organization. Giles and Hargreaves (2006) found in an Ontario study of three innovative districts that successful change builds capacity. The 4-year study examined traits contributing to the innovative quality of districts and reports a culture of constant systems-thinking and collaboration (Giles & Hargreaves, 2006). A case study of four campuses within the same district yields knowledge on the characteristics of professional learning set by a district resulting in transfer to the classroom. Instructional coaching as a follow-up to formal professional development improves the teachers' capacity to utilize research-based instructional practices and an inquiry-based approach to teaching based on student data (Driscoll, 2008).

Instructional coaching to build professional capacity takes foresight and planning in order to reap benefits and is largely dependent upon establishing trust and credibility (Fougere, 2014). This process takes time to develop. Of course, the ultimate purpose for instructional coaching lies in the indirect effect on student learning. The body of work on the influence of instructional coaching on student achievement continues to grow and a literature review on coaching remains incomplete if this work lies unexamined.

Patterns of Successful Coaching and Resulting Impact

Successful coaching programs exhibit commonalities. Through the work of the Kansas Coaching Project at the University of Kansas Center for Research on Learning, Knight (2009) detected patterns of successful coaching programs from working with hundreds of instructional coaches across thirty-five states. Patterns of success include focus and continuity, principal support of coaching, and a clearly defined coaching role.

Additionally, relational trust, time to devote to the coaching process, and continual professional development for coaches also emerged as factors in successful coaching programs (J. Knight, 2009).

The relational trust theme emerged again in a dissertation study in Canada in which the researcher conducted a case study of three reading coaches and their partner teachers (Fougere, 2014). Purposeful questioning on the perceptions of the coaches and the teachers, analyzed through Interpretative Phenomenological Analysis guidelines, revealed trust as a prerequisite to the success of the coaching process. Teachers reported the need to trust the feedback received from the coach would not be evaluative and, at times, resistance emerged until the trust was established. Coaches reported reticence from teachers until the coaches established credibility with the teachers (Fougere, 2014).

Clear communication of the instructional coach's role surfaced as another prerequisite to successful coaching programs. Yopp et al. (2011) describe wise consumer behaviors of coaching programs and depict the administrator's responsibility of defining the coach's responsibilities and roles as imperative. Ill-defined coaching roles result in resistance to change, power struggles, and less-than-enthusiastic teachers (Hull, Balka, & Miles, 2009). Hull et al. (2009) suggest coaches help define their role in the beginning of implementation by actively involving themselves in the classroom during initial observations rather than standing at the back of the classroom, which sends a message of evaluation and intimidation.

The impact of instructional coaching on student achievement, not yet fully developed in the literature, is trending in a positive direction. In Chicago's school reform,

a four-year quantitative study of instructional coaching for reading in Grades K-2 measured student gains with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) and the Terra Nova nationally-normed achievement test. Improvement in students of coached teachers significantly out-performed students of those teachers not coached. Effect sizes were reported as follows: ES = 0.22, Year 1; ES = 0.37, Year 2; ES = 0.43, Year 3 (Biancarosa et al., 2010). In a similar study, Grade 6 students in three urban middle schools increased scores on the state reading assessment from 71 percent of students passing to 85 percent of students passing after teachers received instructional coaching for one year (Reddell, 2004). The largest gains shown in the study were among the lowest-achieving students, suggesting the value of instructional coaching may be higher for struggling students' achievement.

In South Carolina, the State Department of Education implemented the Mathematics and Science Coaching Initiative across the state in schools willing to make a three-year commitment (Dempsey, 2007). Nearly 150 instructional coaches, deployed across forty-five districts, worked with 2,500 elementary and middle school math and science teachers. At the end of the study, one campus's number of third graders scoring proficient on the state science test rose by 27 percent and fourth graders' scores increased by 14 percent. At another school, scores in all tested subjects previously caused the school to be rated unsatisfactory, but with the help of instructional coaches, the campus was able to raise the percentage of students scoring proficient in all tested subjects by 24 percent in third grade and 16 percent in fourth grade (Dempsey, 2007).

A time-series analysis on students' state assessment scores in Kansas City found students of teachers who work with instructional coaches showed improved

scores over a four-year period. Reading proficiency grew in Grades 4-11 district-wide for students of coached teachers by 25 percent and math proficiency grew by 20 percent (Brady, 2007). In a large Texas district, eight campuses participated in a causal-comparative quantitative study with three campuses as the treatment group (Harris, 2009). These three junior high campuses' English Language Arts teachers participated in three full cycles of instructional coaching each six weeks for one semester. The remaining campuses served as a control group with no instructional coaching. Analysis of student scores on the reading state assessment demonstrated a statistically significant relationship between the treatment campuses and students' mean scores on the test. These findings suggest job-embedded professional development through instructional coaching influences student achievement (Harris, 2009).

A longitudinal qualitative study examined the value-added effects of utilizing the Literacy Collaborative model of instruction relying heavily on literacy coaches (Atteberry & Bryk, 2011). The quasi-experimental study involved over 250 kindergarten through Grade 2 teachers across eight states. Teachers received two coaching cycles a month and statistical analyses examined the coaching activities' frequency, length, and distribution. Results indicated significant student gains in reading the first year with the magnitude of the effect growing each subsequent year. Average gain the first year was 16 percent, 18 percent the second year, and 32 percent during the third year of the study. In this study, coaches received professional development for a full year before assuming coaching duties (Atteberry & Bryk, 2011). While these results speak to the effectiveness of coaching, they also speak to the need for quality professional learning for the coaches.

Why does coaching work in some situations? Kee, Anderson, Dearing, Harris, and Shuster (2010) claim success of coaching rests in the change of mental models that occurs through successful coaching. Performance improvement occurs when metacognitive thinking happens. Shifting mental models focuses on the process of change through reflection, and this is indeed the work of instructional coaching (Kee et al., 2010). A case study conducted on Immunity to Change, a training process for leaders to examine and reflect on their own practices, studied the process of changing mental model in sixteen participants (Helsing et al., 2008). The researchers examined common threads of thought in analyzing self-reflection and concluded that the participants experienced four common fears: (a) fear of being unsuccessful, (b) belief that value as a leader is based on mastering leadership, (c) fear of being unsuccessful in problem solving, and (d) fear of sabotaging behaviors within themselves (Helsing et al., 2008). While this study does not address instructional coaching per se, it does address the experience of self-reflection in an attempt to change mental models, another key component of instructional coaching. As so eloquently phrased in *Evocative Coaching*, coaching is a dance in "self-efficacy through awareness, trust, and experimentation" (Tschannen-Moran & Tschannen-Moran, 2010, Kindle location 434).

Another emerging theme in research on successful instructional coaching programs is the need to examine the perceptions of teachers in a coaching relationship. In a mixed methods dissertation, Nicometi (2011) surveyed f45 math teachers in Grades 3-5 in various schools of the Jones County Public School System with the Alabama State Department of Education teacher perception survey on instructional content coaching for math. Survey results analyzed through exploratory factor analysis

indicated strong internal consistency and no statistically significant differences between the themes of performance, collaboration, environment, and attitude, all relative to coaches. Follow-up interviews of select teachers echoed responses to open-ended questions on the survey. Teachers possessed a positive attitude about the math coaches and suggestions for improvement included more time for coaches to be in classrooms and more conducive scheduling from administration (Nicometi, 2011).

Creative scheduling, achieved by district and campus administrators in one small school in South Carolina, served as focus for a study by Dempsey (2007). Methods that administrators used included buying time in which substitute teachers cover classes in order for the instructional coach to work with groups of science teachers on planning instruction and learning content. Other strategies reported as effective for this school were utilizing common planning periods, deploying paraprofessionals and parent volunteers to cover classes, creating longer periods of collegial planning and learning, and embedding opportunities during the school day. In addition, strategies included coaching opportunities through the instructional coach's early arrivals and late departures. The coach's availability for impromptu meetings with teachers, freeing teachers' time by dividing and eliminating some planning duties for different units, and using existing time more efficiently by holding the instructional coaches' duties sacred also showed effectiveness. While it may be tempting to utilize a coach to tutor struggling students, more impact can occur through the coach working with a group of teachers to increase instructional effectiveness (Dempsey, 2007).

Utilization of instructional coaches' time appears as a concern in the literature. A case study performed by Polly (2012) examined types of support requested by four

math teachers working with a math instructional coach in an urban elementary school. Two of the teachers, considered resistant to change, did not request any support. However, the teachers who participated with the coach elicited support from the coach in addressing the level of questioning of students and the quality of student tasks assigned (Polly, 2012). This study's findings lead to the conclusion that teachers' perceptions and attitudes heavily influence the coaching relationship.

Assumptions of coaching's influence on student achievement do not always prove correct. North Carolina implemented instructional coaching in approximately one-third of high schools across the state (n = 115). Surveys administered across these schools indicated EOC scores improved in only six high schools and significant growth only occurred in one high school (Sumner, 2011). In a study of five urban districts in Virginia, a quantitative randomized control study over a 3-year period conducted with each district entering a triplet of campuses serving Grades 3-5 contradicts the assumption of influence on student achievement. One campus in each triad acted as the control group while the remaining campuses received math instructional coaching for three years. At the end of Year 1, there was no statistically significant improvement in student achievement as measured by the state assessment. Although a small significance existed in Year 2, Year 3 yielded no statistically significant findings (Campbell & Malkus, 2011). While instructional coaching can lead to a positive influence on student achievement, complexity riddles the process of implementation and change.

Instructional Coaching in the Rural School Context

The literature reveals a limited number of studies pertaining to instructional coaching in rural schools. Hartman (2013) conducted a case study of one instructional coach working with ten teachers and the complexities of gaining welcome entrance into classrooms. The study reports factors affecting access include insider-versus-outsider status, the dense level of staff relationships in rural schools, and clearly defining the role of the instructional coach (Hartman, 2013). Wyoming's State Department of Education implemented an instructional facilitator program for all schools in the state in 2006. A study was designed as *ex post facto* after two years of coaching and surveyed teachers on the amount of time spent with coaches, activities conducted with the coach, and the perceived impact on teaching practices (Rush & Young, 2011). The study reported that elementary teachers have a more favorable view of coaching than secondary teachers. The instructional coaches in the study were responsible for coaching all content areas and all grade levels. The study authors recommend that coaches have a more narrowed and focused role such as only one content area or a narrowed grade band of teachers (Rush & Young, 2011).

A five-year study of rural schools in Missouri reported on implementing a sustained professional development program for math and science (Harmon et al., 2007). Lead teachers assumed a classroom coaching role to model lessons and provide support for colleagues. However, researchers concluded some teachers resent the coaches' elevated positions and that ill feelings may impede collaborative efforts focused on changing teaching practices (Harmon et al., 2007).

Coaching Science Inquiry in Rural Schools (CSI) is a project of the National Center for Research in Rural Education. In a study of professional development concerning inquiry-based science instruction, 90 science teachers attended from rural schools in Nebraska and Indiana (Kunz et al., 2014). The secondary science teachers participating in the study attended a week-long professional training with an instructional coach. The teachers were then given equipment to video the delivery of inquiry lessons in their own classrooms, to upload videos to a shared cloud-based drive, and to work via web meetings twice each week on analyzing and reflecting on their videoed lesson with the instructional coach present virtually. Findings indicate teacher efficacy rose from a pretest mean score of 78 percent to a posttest mean score of 91 percent (Kunz et al., 2014).

Teaching, viewed as a personal endeavor, contains many facets of emotion (S. Anderson, 1997; Hargreaves, 1998). Factoring the change process into teaching, accomplished through instructional coaching, impacts mental models and self-efficacy (Kee et al., 2010; Kubek, 2012). The complexity of the process of teaching calls for district and school leaders to tread lightly, well-versed on the inner-workings of the change process. Without heeding knowledge of the process of change, district and school leaders throw caution to the wind and money down the drain implementing professional learning efforts through instructional coaching. A deep understanding of change processes necessitates leaders arm themselves with practical knowledge. CBAM, the conceptual framework for the study, acts as the armor for district leaders in the current study and a frame of reference for supporting teachers through change.

The Conceptual Framework: The Concerns-Based Adoption Model

President Barack Obama stated “Change will not come if we wait for some other person or some other time. We are the ones we've been waiting for. We are the change that we seek” (Obama, 2008, Feb. 5). The process of change in relation to schools proves elusive in the literature (Cuban, 2013; Leithwood, 2008; Leithwood et al., 2010). District and school leaders seeking advice on change will find a bevy of resources (Bryk & Easton, 1994; Hargreaves & Goodson, 2006). However, when implementing change innovation, leaders benefit from studying not just the advice on change, but the literature on the process of change (Hall, 2013).

A conceptual framework “explains…the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them” (Miles & Huberman, 1994, p. 18). To properly frame this study, a theoretical model of school change that has endured for decades fits the parameters of the study. CBAM focuses on the process of change in districts and schools (Hall et al., 1973). The model examines the activities, decisions, and intermediations change facilitators may take during the process of innovation implementation. CBAM offers several assumptions concerning school change.

- Change is a process, not an event.
- Change is accomplished by individuals.
- Change is a highly personal experience.
- Change involves developmental growth.
- Change is best understood in operational terms.

The focus of facilitation should be on individuals, innovations, and the context (Hord et al., 2008).

CBAM proposes not just advice to change facilitators, but a set of constructs and dimensions to study, adjust, and enact for successful change (Hall, 2013). Such guidance serves district and campus leaders when implementing change initiatives such as instructional coaching. Direction in navigating the process assists leaders in thinking through change issues (Helsing et al., 2008).

Brief History of the Concerns-Based Adoption Model

CBAM, developed at the University of Texas Research and Development Center for Teacher Education in the 1970s, is “arguably the most robust and empirically grounded theoretical model for the implementation of educational innovations to come out of educational change research in the 1970s and 1980s” (S. Anderson, 1997, p. 331). This model grew out of the work of Frances Fuller (1969) and the Personalized Teacher Education Program instituted in over forty higher education institutions in the late 1960s (Hall, 2013). The common concerns of educators, whether pre-service teachers or university professors, evolved into the CBAM offering three constructs for studying and measuring the complexities of change and recognizing that change is a multiyear process (Hall & Hord, 2011a). CBAM, first conceptualized in 1973, serves as the conceptual model for this study (Hall et al., 1973).

Constructs of CBAM

The first construct of CBAM serves to clarify proposed change through Innovation Configuration Maps (ICMs). This theme of explicitly describing a change innovation, often overlooked in the change process, defines the innovation in detail and

describes use of the innovation in the classroom. ICMs, the tool utilized to define the innovation, describe what the innovation is and what it is not. It breaks the innovation into separate components and elaborates teacher behaviors and student behaviors in action (Hall & Hord, 2011a). The ICMs show what the change looks like when fully implemented. ICMs depict both the idealized images of change and acceptable operational forms of the change. This concept allows for interpretation and adaptation by the teacher to create best fit, but clarifies on a continuum what operational forms are acceptable and unacceptable (Hall & Hord, 2011a). Increasing fidelity in use of the innovation becomes evident as the change progresses from concept to reality (Hall & Hord, 2011b). ICMs are not utilized in this study.

The SoC construct of CBAM speaks to the affective dimension of change. Personal feelings and perceptions can upset the process of change (Hall & Hord, 2011a). Fuller (1969) first addressed these feelings and attitudes as concerns in her work with pre-service teachers. Fuller proposed that concerns of teachers fall into three classifications. Self-concerns, which focus on personal questions of doubt, hinder a teacher at the beginning of an innovation. These concerns may surface as disinterest, lack of knowledge of the innovation, or concerns on the personal involvement and demands. Task concerns center on management and organization matters and may involve time management, resources, or procedures. Impact concerns, the ultimate goal, converge on what is happening to students and the teacher's thoughts of improving the change (Fuller, 1969; Hall & Hord, 2011a). Later, these three areas of concern morphed into the seven SoC. The seven stages exist on a continuum from

Unconcerned to Refocusing and help to detail a teacher's progression through the change process (Hall, 2013).

The third construct of CBAM, LoU concentrates on the behaviors of change implementers on a dichotomous scale of users and nonusers of the innovation. The continuum of nonuse contains three measurable levels while the continuum of use carries five possible levels. These levels include nonuse, orientation, and preparation on the nonuse scale. On the user continuum, levels range from mechanical use, to routine, refinement, integration, and renewal (Hall & Hord, 2011a). The measurement of LoU, conducted through an in-depth focused interview by a trained and certified individual, allows change facilitators to intervene and manage use through support interventions (Hord et al., 2008). An informal observation and branching interview, though not as in-depth as the focused interview, provide means for the change facilitator to gain information on how the user is implementing the change innovation (Hall & Hord, 2011a). LoU is not utilized in this study.

Teacher Perceptions and Stages of Concern

For this study, teacher perceptions served to provide information to district and school leaders in order to afford support to teachers involved in instructional coaching. In CBAM, SoC measurement occurs in two ways. The more commonly used method, a 35-item SoCQ (Hall et al., 1973), identifies mean scores of the highest and second-highest stages of concern. The SoCQ results offer change facilitators results at the individual, campus, or district levels to ascertain best methods of support. The SoCQ, used in countless studies, serves as an empirical tool to determine teachers' concerns,

perceptions, and attitudes on a continuum during the change process (Hall et al., 1973). Examination of some of these studies occurs in the next section of this literature review.

The second method of identifying teachers' SoC lies within the Open-Ended Statements of Concern about an Innovation, published in 1976 by the Research and Development Center for Teacher Education at the University of Texas (Newlove & Hall, 1976). This open-ended focused writing exercise, not meant for psychometric application, acts as a tool to gather additional personal perspectives from the teacher regarding concerns about the implementation of a change innovation. Responses, analyzed manually and aligned with the seven SoC, primarily serve to assist the change facilitator in prescribing interventions (Newlove & Hall, 1976).

The SoCQ defines seven stages of concern and runs parallel to Fuller's (1974) conceptualization of teachers' concerns in the Personalized Teacher Education Program. Stages of concern include Stage 0, Unconcerned, comprises a lack of concern or anxieties focused on more pressing matters than the innovation. Stage 1, Informational, comprises apprehensions on learning about the innovation. Stage 2, Personal, evolves as the egocentric concerns of how an innovation will affect the user personally (Hall et al., 1973). These stages of 0 through 2 align with Fuller's self concerns (Fuller, 1969).

The Stage 3 concerns of the SoCQ, Management concerns, exist as the user begins to utilize the innovation, and focus on time management, resources, and procedures (Hall et al., 1973). Management concerns align with Fuller's task concerns (Fuller, 1969). Stage 4, Consequence concerns, involves teachers' concerns centering on how the innovation is affecting students. Stage 5, Collaboration, focuses on

concerns about collegial use and collaboration on such use. Finally, Stage 6, Refocusing concerns, targets teachers' creative problem solving skills in adapting the innovation for heightened effectiveness (Hall et al., 1973). Stages 4 through 6 parallel Fuller's impact concerns (Fuller, 1969). The seven SoC act as a continuum of apprehensions that teachers progress through during change implementation. A change facilitator utilizes SoCQ information to prescribe interventions to address concerns and manage change (George, Hall, & Stiegelbauer, 2006). Figure 3 shows how Fuller Conceptuatlization (1969) aligns with the Stages of Concern continuum (Hall et al., 1973).

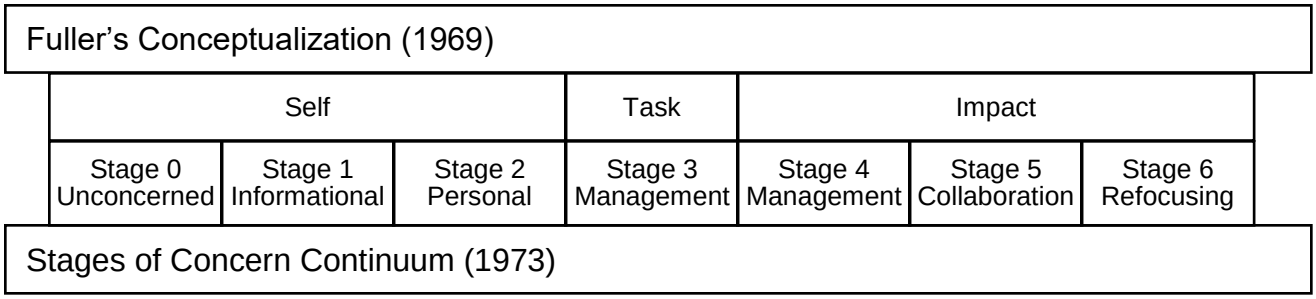

Figure 3. Alignment of Fuller's (1969) conceptualization of teachers' concerns with the Stages of Concern (Hall et al., 1973).

Application of CBAM and Stages of Concern

Decades of literature exists to illustrate the applicability of CBAM and the SoC (Christou, Eliophotou-Menon, & Philippou, 2004; Hall, 1978; Van den Berg & Ros, 1999). The purpose of this literature review assumes not to provide a comprehensive examination of the literature on CBAM, but to highlight a sampling of applications of CBAM, and specifically SoC, to studies similar to the current study.

A 2009 case study by researchers Tunks and Weller (2009) follows a group of fourth grade math teachers participating in a 45-hour summer training program. The

study utilized the SoCQ as a pretest and posttest to follow teachers' implementation of learning over the course of one year. During the school year, teachers participated in monthly group discussions and the researchers observed classes each month. SoC progress from Awareness and Informational concerns toward Consequence and Collaboration concerns throughout the year. Conclusions of the authors include the postulation that true change in the classroom necessitates ongoing support for teachers (Tunks & Weller, 2009).

In a similar mixed methods study of ten primary schools, one secondary school, and one higher education vocational school, researchers used the SoCQ as a pretest and posttest to follow the implementation of several innovations (Van den Berg & Ros, 1999). Researchers conclude the importance of addressing the early SoC exists as paramount to the success of the change innovation. Perhaps not surprisingly, findings indicate high mean scores on the last stages of the scale come from teachers with the highest degrees of implementation (Van den Berg & Ros, 1999).

A study by Hall (1978) examined how to make teacher professional development more effective. The eighty elementary campuses, followed for over two years, implemented a new science curriculum. The study employed the SoCQ and resulted in leaders adjusting training to provide professional development over the course of 18 months to allow development time along the SoC continuum. Change facilitators worked in an adaptive way based on the SoCQ data. Hall (1978) recommends that professional development include ample information of how the innovation would look in the classroom, that trainers target management concerns and underscore that possible results of implementation on students be emphasized.

In a seminal study conducted in Cyprus, Christou et al. (2004) concluded similarly to Hall (1978). A math curriculum aligned to the National Council of Teachers of Mathematics served as the innovation under implementation and teachers received two days of training before implementation. With no further training delivered, the SoCQ results indicated largely management concerns among the 655 teachers participating. However, when researchers analyzed SoCQ data with multiple analysis of variance (MANOVA) statistics with years of teaching experience acting as an independent variable, a relationship was determined between years of experience and higher SoC. Christou et al. (2004) conclude nonusers, frequently also new teachers, need training in managing the implementation of the innovation.

A case study by Dotger and Mangram (2008) of an urban district examined the concerns of teachers as a feasibility study occurred to explore the combination of a middle school and an elementary school into one campus. The study utilized SoCQ data to guide a steering committee charged with examination of the change (Dotger & Mangram, 2008). The results pointed to high concerns for Personal and Management stages. After the district's superintendent gave the committee a directive to combine the campuses regardless of concerns, the SoCQ results from a second administration indicated high Consequence and Collaboration concerns. The conclusions of the researchers urge school administrators and change agents to support transition through the continuum of stages in order not to rush the process (Dotger & Mangram, 2008).

Bailey, Jr. and Palsha (1992) incorporated a mixed methods study to determine the concerns of preschool teachers attending a professional development initiative. One hundred forty-two participants were surveyed across three states with the SoCQ.

Statistically significant differences were not established between Stage 0 – Unconcerned concerns from Stage 1 – Informational concerns. Nor do the authors find a statistically significant difference between Stages 4 and 5 and the final Stage 6 (Consequence, Collaboration, and Refocusing). In their conclusions, Bailey, Jr. and Palsha (1992) recommend the seven stages be reconfigured to just five stages of concern.

A study utilizing the Open-Ended Statements of Concern (Engstrom & Danielson, 2006) examined the perceptions of teachers on a professional development initiative in a rural school district. The district formed a professional development steering committee with teacher and administrative representatives to determine the focus of professional development for the following year. The committee decided to focus on multiple intelligences strategies. Professional learning opportunities offered included a summer seminar, on-site professional development, collegial discussions, and curriculum development. Open-Ended Statements of Concern results from twenty teachers, compared with interview data from eleven of those teachers, indicated a strong concentration of Management concerns. Interview data reinforced those findings and indicated teachers desire more support from school-level administration. Teachers cited support structures such as time for collegial discussions, opportunities for peer coaching, and common planning periods (Engstrom & Danielson, 2006). These findings speak to the need for school and district administrators to gauge teachers' perceptions repeatedly over time when a new initiative is implemented.

Hord and Loucks (1980) published a report offering a concerns-based game plan for training based on CBAM. In the plan, the authors propose five

recommendations for offering professional development to implement an innovation. First, the change facilitator's plan must examine action for an anticipated period of three to five years of planning. Second, emerging concerns dictate intervention actions, activities, and support after initial training. Next, to be most effective, the innovation should be supported by ongoing professional learning opportunities. Fourth, the plan for training should include plans for facilitating and supporting change and addressing differentiated needs throughout the process of change. Lastly, pre-planning occurs with the Game Plan for Training and anticipates the need for interventions and supports (Hord & Loucks, 1980). This Game Plan proposes a sound process utilizing data collected through feedback loops.

The examination of CBAM as the conceptual model for the current study on implementation of instructional coaching fits soundly. While CBAM was not initially constructed for small or rural school districts, the classic model holds valuable constructs for schools of any size. Since this study focused on teacher perceptions and attitudes during an innovative change, the CBAM model can provide the framework for understanding the process of change, the value of teacher opinions, and the paths of support administrators may take to further the change process.

Summary

This review of the literature is divided into three broad sections examining change in the school context, professional learning in the form of instructional coaching, and the process of change with the conceptual model of CBAM. Each section includes the unique context of rural schools relative to each broad concept. Several conclusions can be reached based upon the empirical studies reviewed in this chapter. First,

successful school change follows patterns of transformational leadership at the district, school, principal, and teacher levels (Bryk, 2010; Hord & Roussin, 2013; Leithwood, 2010). When change is implemented with careful forethought, continuous communication and collaboration, and a focus on building professional capacity and increasing student learning, it can achieve success (Drago-Severson & Pinto, 2006; Hallinger & Heck, 2010; Joyce & Showers, 2002). Secondly, professional learning and development also follow patterns for successful implementation (Guskey, 2000; Helsing et al., 2008; Joyce & Showers, 1980; 1981; 1982; 1983). Successful models of professional development often include a sociocultural aspect to learning, such as instructional coaching in which collegial collaboration helps to meet the learner in the appropriate ZPD (Eun, 2008; Shabani et al., 2010; Vygotsky, 1978). Finally, change processes in schools of varying sizes share commonalities (Yettick et al., 2014) although capacity and resources may differ between rural and urban districts (J. Johnson & Howley, 2015; Temple, 2009). Regardless of the demographics, CBAM can provide administrators with a framework of support during the change process (Hall, 2013).

Chapter 3 examines the study design and research methodology chosen to learn more about the teachers' perceptions of an instructional coaching initiative implemented in a rural district. The study employed both qualitative and quantitative measures, defined and described in detail in Chapter 3.

CHAPTER 3

METHOD

This mixed methods convergent parallel study examined teachers' perceptions during the first three years implementing an instructional coaching program in a small, rural fringe district in north Texas. Chapter 3 contains the research design and methodology used to investigate the research questions in this study. The purpose of the study and problem statement are first reviewed to provide the framework of the study. After the research questions are stated, the study design is explained. Next, the sample population and data collection procedures for both the quantitative data and qualitative data are explained. Reliability and validity are addressed after explaining procedures and methods of data collection and analysis.

The review of the literature examined a collection of literature concerning change at both the district and school levels (Bryk & Easton, 1994; Bryk, 2010; Cowan et al., 2012; Leithwood, 2010). It also pointed to the vast amount of literature on professional learning of teachers and the most effective design methods for meaningful professional development. One of the most promising effective strategies in professional learning lies in instructional coaching (Cornett & Knight, 2009; Joyce & Showers, 2002). While the field of literature on instructional coaching's impact on student learning is not yet fully developed, studies indicate it is an effective approach to supporting teachers while implementing learning from professional development (Joyce & Showers, 2002). Instructional coaching studies in urban schools speak to the effectiveness in large districts (Biancarosa et al., 2010; Coggins et al., 2003; Guiney, 2001). However, only a small amount of literature exists for instructional coaching programs in small, rural

schools (Harmon et al., 2007; Hartman, 2013; Rush & Young, 2011). This study provides district leaders with information on how teachers in a similar setting and situation might be supported and also assists in enriching the literature on instructional coaching programs in small rural districts.

Purpose and Problem Statement

The purpose of this mixed methods exploratory case study was to identify the teachers' concerns during implementation of an instructional math coaching program in a small north Texas district. Studying the relationship of the teachers' concerns with unique qualities of small and rural schools is important in order for the district to provide adaptive and ongoing support of teachers implementing instructional coaching. The study also seeks to enrich the literature on change processes in a rural school setting, specifically the implementation of instructional coaching.

The problem this study addresses is to ensure success of students by improving professional development targeting the rigor of math instruction in the classroom after the state implemented new math standards and a new state assessment. Systemic professional development was delivered to teachers through multiple models including training, professional learning teams, and a newly-implemented math instructional coaching program.

Research Questions and Design

The research questions for this study reflect the mix of quantitative and qualitative data collected.

1. What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative)

2. What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level annually over the first three years of implementation of a math instructional coaching program in a rural school? (Quantitative)

3. How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? (Qualitative)

4. What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? (Qualitative)

This study followed a mixed methods parallel convergent design used to merge results of the quantitative data and the qualitative data. Mixed methods research is a type of research utilizing both qualitative and quantitative approaches to questions, methods, data collection, analysis, and inferences (Teddlie & Tashakkori, 2009). The parallel design refers to mixed methods in which the phases (QUAN and QUAL) of the study occur in a parallel manner, either concurrently or over time (Teddlie & Tashakkori, 2009). Data from the data collection phases are then combined for inferencing. Creswell (2015) explains, “This merging then provides both a quantitative and a qualitative picture of the problem, and because both forms of data provide different insight, their combination contributes to seeing the problem from multiple angles and multiple perspectives” (p. 35).

The parallel design of this study allowed for the collection of quantitative normative survey data and qualitative written and interview data to occur concurrently and to be analyzed separately. The two sets of results were then converged and synthesized for interpretation (Creswell & Plano Clark, 2011). Parallel mixed methods

studies are often used to allow for novel findings or conclusions specifically situated to context. In a parallel mixed methods study conducted with university students' perceptions of academic cheating, qualitative open-ended responses were compared with statistical analyses of survey responses (Wei, Chesnut, Barnard-Brak, & Schmidt, 2014). The authors report that by using both qualitative and quantitative data, novel findings emerge that would not have surfaced with a solely qualitative or quantitative study (Wei et al., 2014). Studying lasting effects of a professional development initiative, Cotner (2014) employed a parallel mixed methods approach to survey teachers after a five-year post-training period. Qualitative interviews were conducted to alleviate inherent issues of a small sample size in quantitative findings as well as to inform the quantitative data by providing contextual detail (Cotner, 2014). Frels and Onwuegbuzie (2013) affirm collecting quantitative and qualitative data helps researchers to situate and strengthen findings.

The unit of analysis for the current study exists as the five individual campuses in the rural district under study. The campus level was utilized to analyze SoCQ profiles collectively for participating math teachers at each campus. Change over time in SoCQ profiles and responses to the Open-Ended Statements of Concern were examined at the campus level. Also, campus groups of math teachers were utilized for focus group interviews. Figure 3 illustrates the basic design of this parallel mixed methods study and the various phases and data collected.

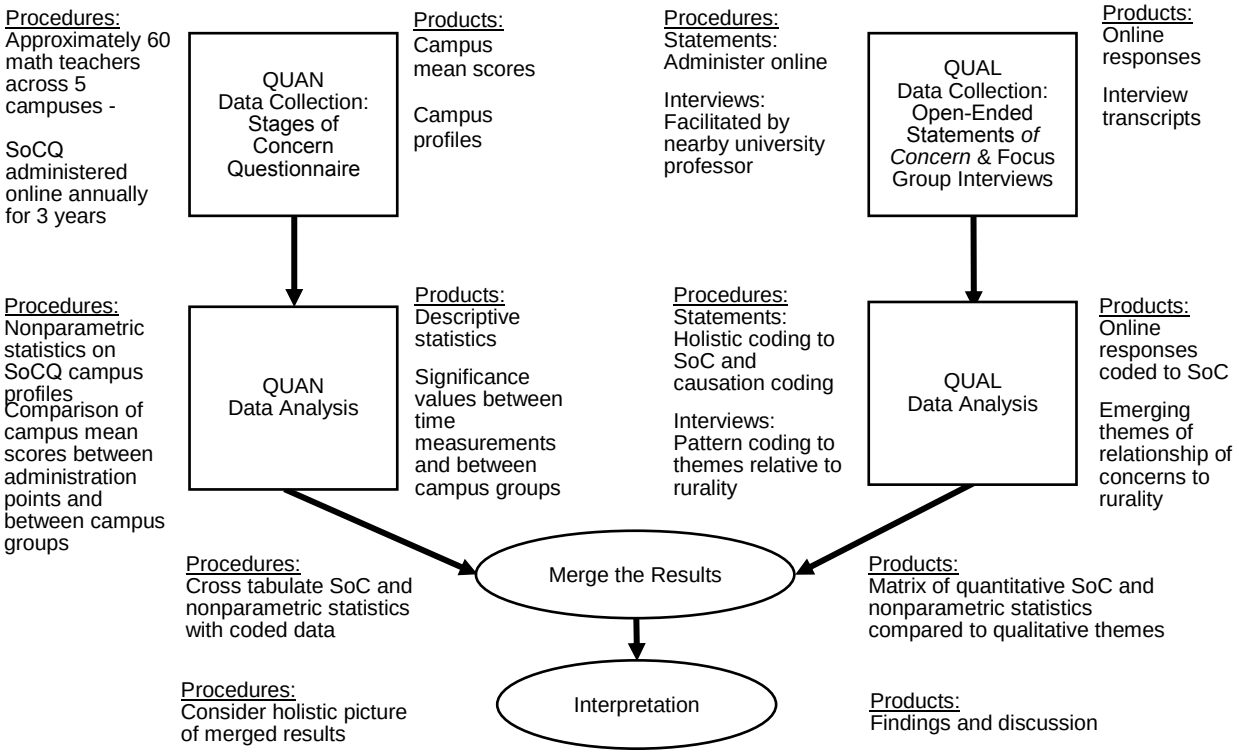

Figure 4. Convergent parallel mixed methods design.

Population and Sample Selection

The current study utilized a convenience sample of teachers within the district in which I am employed. Furthermore, the sample for all data collection — questionnaires, Open-Ended Statements of Concern, and focus group interviews — is voluntary and reported at the campus level only to preserve anonymity of participants. The school district under study lies in the north central Texas region. More than 3,400 students attend school in the district. Demographic information reflects 50 percent of students labeled economically disadvantaged and 46 percent labeled at-risk of dropping out of school. Ethnicity counts reveal 70 percent of students are white, 7 percent African American, 15 percent Hispanic, and 8 percent other ethnicities. Two hundred forty-one

teachers work in the district and 30 percent of teachers have a Master's degree in a state in which the average is 23 percent (Texas Education Agency, 2014).

Five schools comprise the district, and Tables 3 and 4 depict school demographic information. Campus A houses just over 900 students in Grades 9-12 and is the lone high school for the district. At this campus, a total of eleven teachers (15% of the campus teaching faculty) are employed to teach math. The middle school campus, Campus B, houses over 700 students in Grades 6 through 8. This campus employs 10 math teachers (17% of the campus teaching faculty) to teach junior high math with one of the ten teachers also instructing a high-school level algebra class.

Campus C is an elementary campus with PK through Grade 5 students. It houses over 600 students and employs 18 math teachers (39% of the campus teaching faculty). Twelve of the teachers are self-contained teachers at kindergarten, first grade, or second grade. Of the remaining six teachers at this campus, five teach in a teamed setting in which they divide content areas with one or two teaching partners. For example, on a team of two, one teacher will teach math and science while their partner-teacher instructs for reading, English Language Arts, and social studies. One math teacher at this campus is departmentalized and teaches math classes only to fifth graders.

Campus D is the smallest elementary campus in the district with 544 students in PK through Grade 5. Of the eleven math teachers (33% of the campus teaching faculty) at this campus, three teach in self-contained classrooms, one teaches in a departmentalized setting, and the remaining seven teachers instruct as part of a team-teaching situation. The final campus, Campus E, sits adjacent to an Air Force base, and

approximately sixty-five percent of the 616 students live in active military families. Many of these PK through Grade 5 students have previously attended Department of Defense schools in another country, or they may only stay two or three years at the campus until a parent receives new orders. This particular Air Force base houses the Euro-NATO Joint Jet Pilot Training program that trains pilots from all over the world. This contributes to the diversity of the student population at Campus E. Of sixteen math teachers (38% of the campus teaching faculty), 10 are self-contained at primary grade levels and the remainder are on teaching teams at Grades 2 through 5.

The district lies within a community five miles from an urbanized area and has been assigned the label of Rural Fringe by the U.S. Census Bureau (U.S. Census Bureau, 2011). Rural fringe areas, according to the 2010 Urban-Central Locale Codes, are defined as rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster (U.S. Census Bureau, 2011).

Table 3

Demographic Information on Sample District

	District	Region	State	National
Graduation Rate, 2012	97.1%	95.3%	90.4%	81%
Average SAT Score, 2013	1523	1472	1422	1498
Average ACT Score, 2013	21.9	21.0	20.6	20.9
Teachers by Master's Degree Held	29.4%	17.1%	23.2%	47.7% (2012)
Average Teacher Salary, 2014	$45,211	$44,631	$49,692	$56,383 (2013)
Economically Disadvantaged Student Population, 2014	49.6%	58.1%	60.2%	73.3% (2013)

Note. CollegeBoard SAT 2013 college-bound seniors total group profile report, 2013; 2013 ACT national and state scores, 2013; Keaton, 2012; Texas Education Agency, 2014**.**

Table 4

School Student and Teacher Populations

	Total Students	Total Math Teachers
Campus A: Grades 9-12	934	11
Campus B: Grades 6-8	736	10
Campus C: Grades K-5	607	18
Campus D: Grades K-5	544	11
Campus E: Grades K-5	616	16
District	3,437	66

Note. Texas Education Agency, 2014. *Texas Academic Performance Report.* Student counts are inclusive of Disciplinary Alternative Education Placement.

The district in this study implemented instructional coaching only in the content area of mathematics. All math teachers received invitations to participate in the study's data collection, but participation was not mandatory and is reported at the campus level to preserve anonymity of participants. Sixty-six total mathematics teachers are employed by the district and the study utilized fifty-two participants.

Instruments

Two instruments measuring teachers' perceptions were utilized from CBAM to collect data addressing the research questions: (a) the SoCQ was utilized for research questions one and two, and (b) the Open-Ended Statements of Concern was utilized for the third research question. The conceptual framework of the study exists in CBAM created by the Research and Development Center for Teacher Education at the University of Texas at Austin (Hall et al., 1973). This framework details the process of change through three constructs: (a) Innovation Configurations, (b) SoC, and (c) LoU. This study examined the construct of SoC focusing on the perceptions and attitudes of teachers as change was implemented (Hall et al., 1977). The study also utilized focus

group interviews of math teachers from each of the district's five campuses in order to collect data for the fourth research question.

Using the Stages of Concern Questionnaire

The SoCQ, developed in the 1970s, measures an individual's personal perceptions about implementation of an innovation (Hall et al., 1977). Concerns of implementers progress through a continuum of seven stages: 0 – Unconcerned, 1 – Information, 2 – Personal, 3 – Management, 4 – Consequence, 5 – Collaboration, and 6 – Refocusing. In the conceptual framework of the SoC, earlier concerns require resolution before later concerns emerge (George et al., 2006). In the original SoCQ, 195 statements were tested (n = 363) across six areas of concern; however, these items eventually narrowed to 150 statements measuring seven areas of concern. Comparison of hypothesized scales were correlated with factor structure revealing high congruence. Results of this validity study, shown in Table 5, led the project researchers to conclude the seven scales detailed seven different constructs that could be identified with the seven stages of concern (George et al., 2006).

Table 5

Validity Correlations on Stages of Concern Questionnaire

SoC Stage	Varimax Factor Scores						
	7	1	6	3	4	2	5
0	.83	-.36	.41	.04	.05	-.04	-.09
1	.46	.67	-.40	-.10	.22	-.35	.01
2	-.14	.49	.72	.36	.04	-.14	.26
3	.10	-.04	-.34	.91	.10	.12	-.12
4	-.14	-.19	.00	.12	.96	-.02	-.07
5	.10	.37	.11	-.11	.11	.82	-.34
6	.16	-.05	-.17	-.02	.07	.40	.88

Note. 150 items, 363 Respondents. Reproduced from *Measuring Implementation in Schools: The Stages of Concern Questionnaire* by A. A. George, G. E. Hall, & S. M. Stiegelbauer, 2006, p. 15.

The SoCQ reliability was established in 1991 (n = 589) with coefficients for internal reliability of the seven stages ranging from .61 to .85 as shown in Table 6 (Hall et al., 1991). Questions for Stage 0 – Unconcerned - underwent slight revision in 2005 and reliability coefficients were republished at .64 (George et al., 2006).

Table 6

Alpha Coefficients for Reliability of the SoCQ

Stage	0	1	2	3	4	5	6
Means	11.99	16.91	13.04	17.90	25.88	25.86	9.07
SDs	5.94	9.49	6.32	7.30	6.34	6.99	6.52
Alphas	.64	.85	.62	.72	.70	.77	.81

Note. 589 respondents. Reproduced from *Measuring Change Facilitator Stages of Concern: A Manual for Use of the CFSoC Questionnaire,* G. E. Hall, B. W. Newlove, A. A. George, W. L. Rutherford, S. M. Hord, 1991, p. 19. Alpha for Stage 0 has been adjusted according to 2005 testing reported in *Measuring Implementation in Schools: The Stages of Concern Questionnaire* by A. A. George, G. E. Hall, & S. M. Stiegelbauer, 2006, p. 22.

The SoCQ consists of 35 statements that respondents mark on a 0-7 Likert-type scale according to how true a statement seems to portray their concerns at the present time. Zero indicates the least true end of the scale while 7 indicates the most truthful. Totaling raw scores and converting to percentile scores constructs an individual

participant's profile – a measurement that was not utilized in this study due to small sample sizes and anonymity of study participants. Figuring raw scores and percentiles for groups results in a collective profile, and this measurement was utilized in this case to examine each campus as the unit of measure. George et al. (2006) recommend utilization of raw scores for statistical analysis.

Copyright permission for using the SoCQ for the purposes of this study was granted by the Southwest Educational Development Laboratory (SEDL), an affiliate of the American Institutes for Research (see Appendix A). SoCQ data was collected annually by the district portrayed in the study for three consecutive years (2014-2016) and were utilized for this study as *ex post facto* data.

Open-Ended Statements of Concern

The Open-Ended Statements of Concern, first published in 1976, consists of three pages. The first page provides directions to participants. Page 2 contains the single question "When you think about *the innovation* [instructional coaching in a rural school in the current study], what are you concerned about?" with areas for three statements of response (Newlove & Hall, 1976). The final page of the original document requests demographic information from the participant and was not utilized in this study. The instrument was administered online through an online survey program. For the instrument as it was used in this study, see Appendix B. This instrument does not bear psychometrical properties, but analysis directed by Newlove's and Hall's (1976) administration manual dictates a global coding of the participant's statements to the seven SoC. In accordance with the authors' recommendations, coding was holistically aligned to the seven SoC. However, in addition, cycles of coding including causation

coding were utilized to determine if any of the written responses of participants suggest rurality issues as contributing factors (Saldaña, 2013).

Interview Questions

A focus group interview of math teacher participants was conducted for each campus in order to determine if any participating teacher's concerns aligned with characteristics of rural schools. Interview questions evolved out of several pieces of literature to capture themes inherent in broad studies of the rural context. For example, Jimerson (2005) identified rural school characteristics impeding the ability of rural schools' compliance with the *NCLB* (U.S.D.E., 2002). Characteristics include small size, high percentages of minority and economically disadvantaged students, remote locations, declining enrollments, and desire to maintain local control (Jimerson, 2005). The report *Status of Education in Rural America,* published by the U.S.D.E. in 2007, identifies rural outcomes including fewer parents with college degrees, fewer parents who expect their children to earn college degrees, difficulty in teacher staffing and retention, and less revenue from local funding sources (Provasnik et al., 2007). Lewis (2003) postulates that rural schools suffer with isolated teachers who earn less than their suburban and urban counterparts do, are ill-equipped to implement the latest technology, and are often hostile to accountability.

Because the National Center for Education Statistics determined 11 student outcomes unique to rural schools in the *Status of Education in Rural America,* these outcomes were used to establish context in the focus group interviews for participants (Provasnik et al., 2007). The primary reason for focus group interviews was to determine any relationship between concerns about the instructional coaching and the

rural context of the district. The outcomes are listed below in Table 7 and were given to interview participants prior to interviews. Focus group interview data was analyzed at the campus level in order to preserve anonymity in small sample sizes.

Table 7

Status of Education in Rural America Student Outcomes

	Learner Outcome
1.	The proportion of public school students in rural areas in the 4th and 8th grades that read at or above the Proficient level in 2005 was larger than in cities and towns, but smaller than in suburban areas.
2.	A larger proportion of public school students in rural areas in the 4th, 8th, and 12th grades in 2005 scored at or above the Proficient level in mathematics than their peers in cities. However, at all three grade levels, smaller percentages of rural public school students scored at this achievement level than did their suburban peers.
3.	A larger proportion of public school students in rural areas in the 4th, 8th, and 12th grades in 2005 scored at or above the Proficient level in science than did their peers in cities. There were no measurable differences between the percentages of rural and suburban public school students scoring at the Proficient level in any of the three grade levels.
4.	The high school status dropout rate among 16- to 24-year-olds in rural areas in 2004 was higher than in suburban areas, but lower than in cities.
5.	The averaged freshman graduation rate for public high schools during the 2002–03 school year was higher in rural areas than in cities, but was lower in rural areas than in towns and suburbs.
6.	In 2004, the percentage of teenagers in rural areas who were neither enrolled in school nor employed was higher than in suburban areas, lower than in cities, but not measurably different than in towns.
7.	College enrollment rates for both 18- to 24-year-olds and 25- to 29-year-olds were generally lower in rural areas than in all other locales in 2004. In rural areas, as in the nation as a whole, females enrolled in postsecondary education at a higher rate than males.
8.	Forty percent of adults in rural areas participated in some type of formal educational activity in 2005. A smaller percentage of rural adults than suburban adults took work-related courses or courses for personal interest and a smaller percentage of rural adults than adults in both cities and suburban areas participated in part-time college or university credential programs.
9.	In 2004, the percentage of adults with a bachelor's degree as their highest educational level was lower in rural areas than the national percentage.
10.	People with higher levels of educational attainment had higher annual median earnings in 2004, regardless of sex and locale. Persons in rural areas generally had higher median earnings than those in cities and towns, but lower median earnings than those in suburban areas, regardless of educational attainment.
11.	In 2004, the unemployment rate for adults ages 25 to 34 was lower in rural areas than in cities and towns, and the unemployment rate for adults ages 35 to 64 was lower in rural areas than in all other locales.

Note. Learner Outcomes*, Status of Education in Rural America*, Provasnik, Kewal-Ramani, Coleman, Gilbertson, Herring, & Xie, 2007. U.S.D.E., Washington, D.C.

Focus group interviews were conducted for each of the five campuses' mathematics faculty at the conclusion of the three-year study period. Group interviews can be particularly useful in situations where participants can express multiple

perspectives on a similar experience such as implementation of a new program (Glesne, 2011). Morgan (1997) recommends six to ten participants for a focus group and that size worked well with the size of math faculties from each campus in this study. Participation was on a voluntary basis. Since I am a district administrator in a supervisory position in the district under study, a professor from a nearby university facilitated the focus group interviews. The facilitator has an established working relationship with the district from prior work.

The purpose of the focus group interviews was to determine if any teacher concerns can be attributed to the rural setting of the district. In conducting focus group interviews, Glesne (2011) recommends the facilitator establish group norms and begin with an experiential question and elicit a response from each participant. Once each participant has had a chance to respond, Glesne then recommends the facilitator pose a question for group interaction, moderating and redirecting as necessary (Glesne, 2011). Questions used in the focus group interviews for this study include the following:

1. Can you tell me about your experiences and concerns with instructional coaching?

2. How have your concerns changed over the three years since instructional coaching was first implemented?

3. How might any of your concerns be related to the Student Outcomes listed from the U.S.D.E.'s *Status of Education in Rural America* study (as presented in the participant's handout)?

Audio recordings of each focus group interview were conducted for later coding review and transcription. The transcriptionist, contracted externally, scribed during the interviews and later used the auditory recording of each interview to fill in and verify details. To preserve anonymity, participants chose a numbered card to place on the

table in front of them during the interviews. The transcriptionist referred only to the speaker's number in the interview transcripts.

Quantitative Data

Variables

Using statistical analysis for determining differences between campus groups' relative levels of intensity on the seven SoC over three time periods yielded quantitative results to Research Questions 1 and 2. Variables for quantitative analysis of SoCQ results are as shown in Table 8 below.

Table 8

Variables for Quantitative Analysis

Variable	Description	Design	Type of Variable
Dependent Variables	Respondents' scores on Stages of Concern Questionnaire		Continuous variable
Independent Variable 1	5 campus groups' mean scores on each stage of the Stages of Concern Questionnaire	Between-subjects design: Five campuses remain static, but due to staff turnover and volunteer participation, cases are considered independent.	Categorical variable
Independent Variable 2	3 times of measurement	SoCQ is administered annually over 3 years.	Categorical variable

Independent variables included year 1, year 2, and year 3 results of the SoCQ administered each year over the course of three years (2014-2016) by the district under study. Each of the five campuses in the district completed the SoCQ annually, and mean scores of each campus on the seven SoC were reported for each of the three years. SoCQ data was collected by the district for their own purposes and were utilized as *ex post facto* data in this study.

Data Collection

Upon receiving approval from dissertation committee members, as well as the University Institutional Review Board, data collection began. The SoCQ lends itself to administration through a variety of methods. For this study, the SoCQ administration occurred through online services offered by the SEDL, an affiliate of the American Institutes of Research, under the direction of the school district. The school district collected this data for internal purposes. Administration of the questionnaire transpired in May 2014, May 2015, and May 2016. These data existed and were utilized as *ex post facto* data with permission of the district. Retention of the data will remain with the district in a password-protected cloud storage for a minimum period of three years after the study. Analyses of SoCQ data conducted beyond the district's purposes are kept in locked storage by the chair of my dissertation committee for a period of three years.

Five campus groups' data, collected from completing the SoCQ at three points in time, served as the main data collection for Research Questions 1 and 2, as follows.

1. What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative)

2. What patterns and trends emerge over time when the Stages of Concern Questionnaire data is examined at the campus level annually over the first three years of implementation of a math instructional coaching program in a rural school? (Quantitative)

    H_0 There will be no significant differences in the mean scores of the seven Stages of Concern over time for the five campuses as reported on the SoCQ for each campus.

    H_a There will be significant differences in the mean scores of the seven Stages of Concern over time for the five campuses as reported on the SoCQ for each campus.

The SoCQ data were utilized as *ex post facto* data that the district collected for internal purposes. While a one-way multivariate analysis of variance (MANOVA) would normally be used to statistically analyze responses from repeated measures of categorical data with two or more groups, the samples of this study failed to meet the assumptions required to run MANOVA analysis (Lund & Lund, 2015). Therefore, non-parametric analyses were used to analyze the statistical data from the questionnaire.

Sample sizes reported for each campus over the three-year study period were as follows: Campus A – eight (2014), nine (2015), eleven (2016); Campus B – nine (2014), eight (2015), six (2016); Campus C – sixteen (2014), ten (2015), fifteen (2016); Campus D – six (2014), four (2015), three (2016); and Campus E – thirteen (2014), ten (2015), eleven (2016). Total SoCQ respondent rates over the three years of the study were 52, 41, and 46 respectively.

Data Analysis

Mean scores on the seven SoC for each of the five campus groups were utilized from each of three years of district's records in addressing Research Questions 1 and 2. These *ex post facto* data were descriptively analyzed with Statistical Package for the Social Sciences (SPSS) software. For determining differences in mean scores of groups with instruments administered on multiple occasions, MANOVA analysis is usually needed. However, the assumptions for the MANOVA were not met by the sample in this study (Lund & Lund, 2015). The assumption of within-subject samples was not possible for two reasons. First, questionnaire respondents volunteered for the survey with a condition of anonymity. Second, campus group scores were compared, and staff turnover during the three-year collection period made within-subject data

impossible. Also, the MANOVA relies on a sample size large enough to compensate for degrees of freedom in order to yield statistical power. Since the sample sizes in this study were not sufficiently large to compensate for degrees of freedom, any statistical findings from a MANOVA would have an increased risk of Type I error (Lund & Lund, 2015).

Due to the small sample sizes in this study and the independence of each point of measure, nonparametric statistics were utilized. The Kruskal-Wallis *H*-Test was used. The Kruskal-Wallis *H*-test is a nonparametric statistical procedure used to compare more than two samples that are independent (Corder & Foreman, 1997). The Kruskal-Wallis was used to identify any statistically significant differences between campuses, and once determined, a *post-hoc* analysis with the Mann-Whitney *U*-test or the Dunn procedure with a Bonferroni correction for ties was necessary to determine the specific pairwise comparisons for significant differences. The Kruskal-Wallis *H*-test and Mann-Whitney *U*-test were used by Gömleksiz and Bulut (2007) in a study examining primary school teachers' views on the implementation and effectiveness of a new math curriculum. Because some of the samples did not meet tests for normality, the researchers utilized nonparametric statistics to compare unrelated samples (Gömleksiz & Bulut, 2007).

Reliability and Validity

As with any research study, contemplation of threats to reliability and validity becomes necessary. Statistics for content validity and internally consistent reliability of the SoCQ have previously been reported in this chapter. Efforts to establish reliability of statistical analysis of SoCQ results included the use of the SPSS software, checking

assumptions of normality, and using the Bonferroni procedure to control for Type I error inflation if a statistical significance was determined. The context of the SoCQ being administered three times over three years (2014-2016) served as test-retest reliability. The SoCQ was administered online through services offered by the SEDL, an affiliate of the American Institutes of Research, and overseen by the district to preserve anonymity. Analyses was at the campus level only. Convergent validity of the SoCQ data was verified by cross-referencing results with results from the qualitative measure, the Open-Ended Statements of Concern responses.

Qualitative Data

Data Collection

Collection of responses to the Open-Ended Statements of Concern occurred in the spring of 2016 to address Research Question 3:

> How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3?

The Open-Ended Statements of Concern was administered to math teachers at all five campuses in the district. An informed consent notice (see Appendix D) was included in the front material of the survey for participants to confirm reading. The responses to the survey were voluntary and anonymous, identifiable only by campus. Data was examined holistically at an individual level and aligned to the seven SoC initially, then collectively aligned at the campus level. Participants responded anonymously online, and responses were protected by password entry. Informed consent notices and data are maintained in locked storage by the chair of my dissertation committee for a period of three years.

The Open-Ended Statements of Concern instrument was administered online through SurveyMonkey during the month of May 2016. Participation in the instrument was voluntary with indication of campus as the only identifier utilized in order to protect anonymity. A total sample of 31 math teachers participated in the data collection. Campus A had nine participants, or 82 percent of math teachers participating. Campus B had three respondents, or 30 percent of math teachers. Campuses C through E had the following participation rates respectively: Five math teachers or 28 percent, five teachers or 45 percent, and nine math teachers or 56 percent.

Qualitative data collection through semi-structured campus focus group interviews was designed to answer research question 4:

> What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context, as expressed by teachers in campus-level group interviews occurring in Year 3?

The purpose of the focus group interviews was to determine if any teacher's concerns could be attributed to the rural setting of the district. Group interviews of mathematics teachers in the school district occurred on a volunteer basis by campus during the spring of 2016. Facilitation of interviews was conducted by a university professor who has a strong working relationship with the district. A transcriptionist, externally contracted, was present to type responses during the interview and to record the interview audio. The transcriptionist used the sound recording to later complete and verify the typed record of the group interview. Interviews took place in a conference room with participants using a numbered card at their places to assist the transcriptionist in recording responses by number to preserve anonymity. After the post-interview transcription was completed, the audio recordings of the interviews are

maintained in locked storage by the chair of my dissertation committee for a period of three years.

In conducting the interviews, the facilitator secured written informed consent agreements from participants (see Appendix E), established group norms, and provided each participant with a list of outcomes from *Status of Education in Rural America* (Provasnik et al., 2007). The facilitator began questioning with an experiential question and elicited a response from each participant to assist in establishing a comfort level with participants. After each participant had a chance to respond, the facilitator posed a question for group interaction, then moderated and redirected as necessary. Questions used in the focus group interviews for this study include the following:

1. Can you tell me about your experiences and concerns with instructional coaching?
2. How have your concerns changed over the three years since instructional coaching was first implemented?
3. How might any of your concerns be related to the Student Outcomes listed from the U.S.D.E.'s *Status of Education in Rural America* study?

Each campus had a varying number of math teachers participating in the focus group interviews. Campus A, the high school campus, had nine participating teachers, or eighty-two percent participation. Campus B, the middle school campus, only had two teachers participate for twenty percent participation. The remaining campuses had the following number of participants for the focus group interviews: Campus C – five math teachers or 28 percent participation, Campus D – five math teachers or 45 percent, and Campus E – 2 math teachers or 12.5 percent participation.

Data Analysis

Open-Ended Statements of Concern responses first cycle coding was holistic in accordance with authors' recommendations (Newlove & Hall, 1976). In addition, second cycle causation coding was used to determine if any of the written responses of participants suggested rurality issues as contributing factors to concerns (Saldaña, 2013).

Analysis of group interview transcriptions was coded descriptively during first-cycle coding. Descriptive coding assigns labels to data to summarize in a word or short phrase (Saldaña, 2013). Descriptive codes can provide an inventory of data as a first step in coding, then can be sorted into categories for further refinement. Transcriptions can then be reread with pattern coding for "explanatory or inferential codes, ones that identify an emergent theme, configuration, or explanation" (Miles & Huberman, 1994, p. 69). In coding data for possible rurality influence on teachers' various concerns of instructional coaching, pattern coding and causation coding were utilized in the second and third cycles (Saldaña, 2013).

Member-checking of transcript results for each campus was conducted after focus group interviews by sending a copy of the campus interview transcript to participants from each campus within three weeks of the interview session. Participants provided member-checking.

Trustworthiness

Trustworthiness, according to Teddlie and Tashakkori (2009), encompasses validity issues of qualitative research. Included in trustworthiness are credibility,

transferability, dependability, and confirmability. Each of these issues plays an important role in evaluation of inquiry research (Teddlie & Tashakkori, 2009).

To help establish credibility in this study, triangulation of data was employed through utilizing the SoCQ, the Open-Ended Statements of Concern, and focus group interviews to support findings on teachers' concerns relative to instructional coaching in math during three years of implementation. Utilizing data from the SoCQ administered at different points in time also served as triangulation of sources. Utilizing member-checking of interview transcripts assisted with credibility of interview findings.

Transferability of findings is difficult to establish in case studies with limited sample sizes. Though any findings of a relationship between the rural school context and teacher concerns during implementation of instructional coaching may not be transferable to other settings, this study contributes to the field of study on the rural school context. Through detailed description of the process of this study and the demographics of the district under study, replicability may be achievable.

Dependability of this study was both supported and threatened by the dissertation process. Dependability was supported by the dissertation committee's input and supervision of the research process, data gathering and analysis, and findings and conclusions. However, the dependability was also threatened due to my novice status as a researcher.

Finally, confirmability of teachers' concerns in this district case study was strengthened by the mixed methods design, my reflexivity of the research process throughout the study, and my dissertation committee's supervision of the study.

Data Analysis and Convergence

Both the data from the quantitative findings and the data from the qualitative findings were analyzed independently, then merged together to form conclusions from the study. The timing of study actions was designed to allow collection of data concurrently and then assembling of amalgamated data for interpretation (Creswell & Plano Clark, 2011). This amalgamation of findings is presented in a matrix after cross tabulation of quantitative variables and findings and qualitative data themes were established. The purpose of the study was to provide pertinent information to the school district in the study to identify the concerns of teachers during implementation of an instructional math-coaching program and to determine if these concerns were influenced by rural situational factors. By interpreting both the qualitative and quantitative findings, complementarity of data provides a more complete understanding of the implementation of an instructional coaching program in a rural school district (Creswell, 2015).

Limitations and Ethical Considerations

In any study that involves human subjects, ethical considerations deserve reflection. The U.S. Department of Health and Human Services dictates Institutional Review Board (IRB) policies and procedures be followed. Approval was gained from the university's IRB before undertaking this study.

Several limitations exist in this study. Because I work as a district administrator in the district, concern exists for candidness of responses provided by participants. Measures exercised to ensure the anonymity of participants in providing their responses helped to address this concern. An additional limitation was the relative similarity of this

district to suburban districts. The district lies in close proximity to an urbanized area and has access to resources nearby that other more remote districts do not. The wide variability of districts bearing the rural label decreases the likelihood of generalization of study findings and conclusions.

Researcher bias exists as another limitation. My job duties involve supervising the instructional coaches and the teachers in the district under study. This position had the potential to influence responses from participants and to influence my bias in the study. I have attempted to alleviate this bias by utilizing a nearby university professor to conduct campus focus interviews. Also, by being reflexive throughout the process and discussing data, findings, and conclusions with dissertation committee members, I have tried to be cognizant that bias may be a limitation.

Summary

In this chapter, data collection actions and analysis for this study were outlined and explained. The design of the study is a mixed methods convergent parallel project. *Ex post facto* quantitative data consisted of SoCQ responses collected at annual time points over the first three years of implementation of an instructional coaching program for math teachers in a rural north Texas school district. Campuses' mean scores for each stage served as the unit of analysis through nonparametric statistics to determine if differences existed between campuses' relative intensity levels on the seven SoC.

Qualitative data were collected concurrently with quantitative data. Qualitative data for this study included math teachers' responses to Open-Ended Statements of Concern, coded to establish validity of SoCQ data. Campus focus group interviews conducted by a nearby university professor were staged in order to provide teachers an

avenue to discuss possible situational factors of rurality that may have influenced participants' concerns. Interview data, transcribed and coded through multiple cycles of coding, was analyzed to determine emerging themes relevant to the rural context.

The quantitative and qualitative findings are converged in the findings section for interpretation and conclusions. This convergence of data allowed for better understanding of the research problem and purpose which was to provide a pragmatic vision of how a small rural district can support teachers as an instructional coaching program undergoes implementation.

CHAPTER 4

RESULTS

As described in Chapter 3, this study utilized a parallel convergent mixed methods study design to examine teachers' concerns during the first three years of a math coaching initiative. Qualitative and quantitative data, collected concurrently and analyzed separately, converged to examine combined results in this chapter. The mixed method approach allows for one data set to inform the other as results are merged and integrated for synthesis (Fetters, Curry, & Creswell, 2013).

The district studied is a rural north Texas district with a student enrollment of 3,400 students. The research questions addressed by the data collection and analyses include:

1. What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative)

2. What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level annually over the first three years of implementation of a math instructional coaching program in a rural school? (Quantitative)

3. How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? (Qualitative)

4. What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? (Qualitative)

This chapter describes the collection of data for the quantitative research questions through the SoCQ measured annually for three years, addressing the first two research questions. The collection of qualitative data – Open Ended Statements of Concern and focus group interviews by campus – is also described, addressing the last two research questions. Finally, the two data sets are converged to serve the purposes of complementarity and triangulation of data (Teddlie & Tashakkori, 2006).

Population and Sample

The district in this study is located in a rural area of north Texas and is approximately five miles from a non-metropolitan urbanized area. This location is classified as a Rural Fringe locale by the U.S. Census Bureau (2011). This classification can be problematic and conflicts with the classification of the district by the Texas Education Agency (2015) who classifies the district as Other Central City Suburban. Five schools comprise the district and 241 teachers are employed. Campuses are labeled A through E in order to protect anonymity. Campus A houses just over 900 students in Grades 9-12 and is the lone high school and has a total of eleven math teachers (15% of the campus teaching faculty). The middle school campus, Campus B, houses over 700 students in Grades 6 through 8 and employs 10 math teachers (17% of the campus teaching faculty). Campuses C, D, and E are elementary campuses with pre-kindergarten (PK) through Grade 5 students. Campus C houses over 600 students and employs 18 math teachers (39% of the campus teaching faculty). Twelve of the teachers are self-contained teachers at kindergarten, first grade, or second grade level. Of the remaining six teachers at this campus, five teach in a teamed setting in which they divide content areas with one or two teaching partners.

One math teacher at this campus is departmentalized and teaches math classes only to fifth graders. Campus D is the smallest elementary campus in the district with 544 students in PK through Grade 5 and eleven math teachers (33% of the campus teaching faculty). Three teachers work in self-contained classrooms, one teaches in a departmentalized setting, and the remaining seven teachers instruct as part of a team-teaching situation. The final campus, Campus E, houses 616 students and sixteen math teachers (38% of the campus teaching faculty), ten are self-contained at primary grade levels and the remainder are on teaching teams at Grades 2 through 4 with a departmentalized math teacher at Grade 5. Table 9 represents the pool of participants for this study and the campuses at which they are housed.

Table 9

Respondent Pool of Participants

	Campus A	Campus B	Campus C	Campus D	Campus E
Grade Levels	9-12	6-8	PK-5	PK-5	PK-5
Student Population	934	736	607	544	616
Teaching Faculty	70	59	44	30	38
Math Teachers	11	10	18	11	16

Note. Texas Education Agency, 2014. *Texas Academic Performance Report.* Student counts are inclusive of Disciplinary Alternative Education Placement.

This chapter is arranged by each of the research questions, detailing analysis of data for each question – both quantitative and qualitative as appropriate. After the four research questions' analyses have been detailed, a summary of the convergence of qualitative and qualitative data is presented.

Research Question 1

Research Question 1 states: What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern

Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? (Quantitative).

The SoCQ was administered to math teachers in the district on three separate occasions: May 2014, May 2015, and May 2016. The questionnaire was administered online through services offered by the SEDL, an affiliate of the American Institutes of Research. Respondents volunteered to take the survey with the condition of anonymity and the only identifiable information was a question indicating the campus at which the teacher was assigned. Therefore, the unit of analysis for this data is at the campus level. This data set was collected by the school district and is used in this study as *ex post facto* data. Teddlie and Tashakkori (2009) state the advantages of using questionnaires as the ability to gauge attitudes in a quick way that is easy to administer. However, weaknesses of questionnaires include the possibility of a low response rate and keeping the questionnaire short enough to maintain respondents' interest in completing the questions (Teddlie & Tashakkori, 2009), Indeed, this first weakness – low response rate - held true in this study as the study sample and questionnaire respondents are described.

Of a total of 66 math teachers in the district, not all potential respondents chose to participate in the SoCQ. Each math teacher was invited to participate with the recruitment script shown in Appendix C. References to the district by name have been redacted from all appendices. Because the identity of each participant is unknown, and staffing shifts occur over the three years of collection, demographic information on participants such as ethnicity, gender, and years of teaching was not possible. Matched

cases also were not possible. The number of participants who actually participated in the SoCQ each year is shown in Table 10.

Table 10

Stages of Concern Questionnaire Participants

Sample	Campus A	Campus B	Campus C	Campus D	Campus E	District
May 2014	8 (73%)	9 (90%)	16 (89%)	6 (55%)	13 (81%)	52 (79%)
May 2015	9 (82%)	8 (80%)	10 (56%)	4 (36%)	10 (63%)	41 (62%)
May 2016	11 (100%)	6 (60%)	15 (94%)	3 (27%)	11 (69%)	46 (70%)

The SoCQ requires responses to 35 items with a Likert-type rating of 0 – *irrelevant* – to 7 – *very true of me now*. The questionnaire contains five items for each of the seven SoC. Raw scores are summed for each of the seven stages and converted to percentile scores. These percentile scores indicate the relative intensity level for each stage of the SoC (Hall et al., 1977). Percentile scores for the highest two stages of intensity are bolded and italicized for each campus in Table 11.

Table 11

Stages of Concern Questionnaire Group Percentile Scores

2014	N	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Campus A	8	***87***	***57***	55	27	8	22	30
Campus B	9	***75***	54	***55***	39	7	22	22
Campus C	6	***69***	60	***63***	34	9	31	22
Campus D	16	***87***	54	***57***	30	7	31	17
Campus E	13	***81***	***60***	59	39	8	36	20
2015	N	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Campus A	9	***81***	***40***	31	27	5	22	17
Campus B	8	***48***	40	***41***	30	5	14	11
Campus C	4	***87***	***48***	***48***	27	7	19	20
Campus D	10	***91***	48	***55***	27	8	22	14
Campus E	10	***91***	51	***57***	27	5	28	17
2016	N	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Campus A	11	***87***	***48***	***48***	27	5	19	38
Campus B	6	***69***	37	***41***	23	7	19	22
Campus C	3	40	***60***	***76***	34	7	36	17
Campus D	15	***96***	57	***63***	39	8	22	20
Campus E	11	***87***	57	***59***	39	8	22	22

Note. The highest two stages' percentile scores are bolded and italicized for each campus each year.

A line graph for the first year of the study is shown in Figure 5 2014 SoCQ Percentile Scores by Campus.

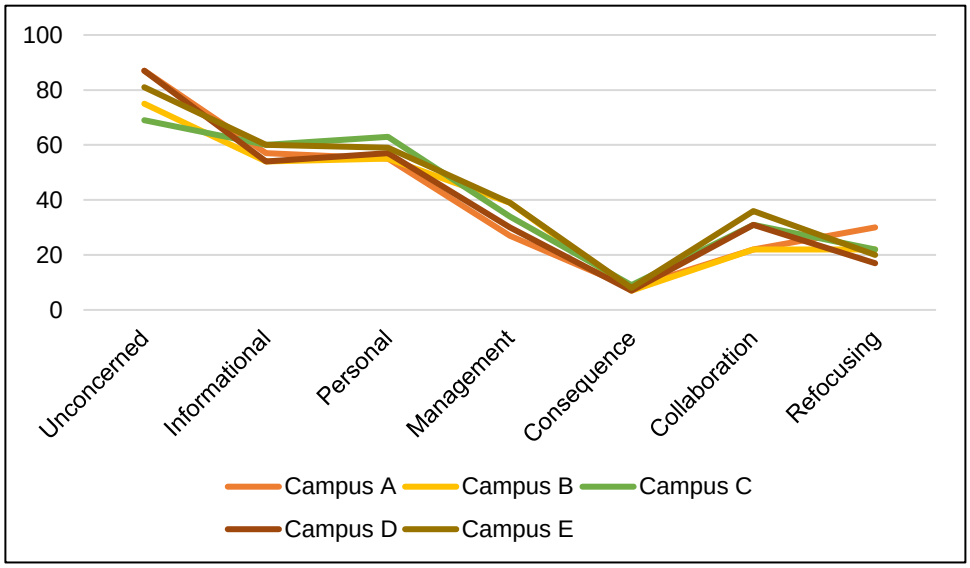

Figure 5. 2014 SoCQ percentiles scores by campus.

When examining 2014 SoCQ results, the highest stage of concern for each campus was the unconcerned stage. The higher the stage score, the more strength or intensity the stage indicates. The unconcerned stage points to the “degree of priority the respondent is placing on the innovation and the relative intensity of concern about the innovation” (George et al., 2006, p. 33). Stage 0 – Unconcerned does not indicate whether the respondent is a user or nonuser of the innovation, but the higher the Stage 0 score, the less the respondent is concerned about the innovation (George et al., 2006). The second-highest relative stage of concern for Campuses B and E in 2014 is the informational stage, or Stage 1. Stage 1 concerns indicate the respondent “wants fundamental information about what the innovation is, what it will do, and what its use will involve” (George et al., 2006, p. 33). For Campuses A, C, and D, Stage 2 – Personal are indicated as the second highest stage of concern in 2014. Personal

concerns center around self and may include a preoccupation with rewards, incentives, and what effect the innovation will impose on the individual (George et al., 2006).

George et al, (2006) maintain the group plots on a graph provide the richest and most complete picture of data for clinical assessment. With the highest stages of concerns at Stages 0, 1, or 2, the graph indicates nonuser profiles at all five campuses in 2014. This is not unusual for the first year of implementation of an innovation and points to a need for more information and a common understanding of the innovation. The slight tailing off of Stage 6 for most campuses indicates nonusers who do not have ideas of a replacement strategy for the innovation. However, the tailing up of Campus A points to possible resistance to the innovation (George et al., 2006).

The 2015 graph of SoCQ percentile score results, depicted in Figure 6 indicates Stage 0 – Unconcerned is still the stage of concern with the highest level of intensity. However, Campus B's relative intensity at Stages 0 and 1 declined, indicating a better understanding of the coaching program. Campus A's pattern of percentile scores has changed only by the intensity level and slight tailing down of Stage 6. The resistance exhibited by this campus in 2014 appears as less of a concern in 2015. Campuses A and C indicated the second highest stage of concern was informational concerns, although Campus C's second-highest stage of concerns tied with personal concerns. Results from Campuses B, D, and E indicated the secondary level of concern was personal concerns. It is interesting to note, while the group profiles indicated continuing nonuser profiles, the levels of intensity for Stages 1 and 2 declined at each campus in

2015. The overall profiles for each campus suggests not terribly over-concerned, positively disposed nonusers during 2015 (George et al., 2006).

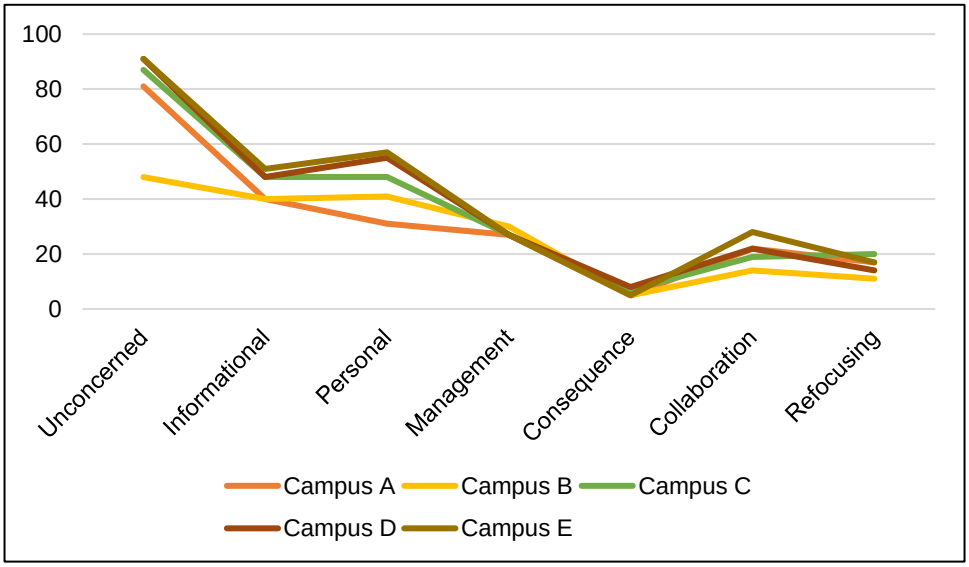

Figure 6. 2015 SoCQ percentile scores by campus.

The SoCQ graph of percentile scores by campus shows more movement for 2016 than the previous two years, as depicted in Figure 7. Results indicated Campus A retained Stage 0 - Unconcerned at a high level of intensity but informational and personal concerns tied for the second-highest stage. This may indicate a general understanding of the coaching program but a growing uncertainty about how the program will affect each teacher. The tailing-up of Stage 6 was similar to the campus's 2014 profile suggesting the campus may have resistance or ideas on how to replace the innovation.

Campuses B, D, and E identified Stage 0 – Unconcerned as the highest level of intensity with Stage 3 – Personal as the second highest intensity. Campuses who have highest Stage 3 concerns generally point to concerns about job performance and job security (George et al., 2006). Campus C exhibited a relatively sharp increase between Stages 1 and 2, which George et al. (2006) refer to as a negative one-two split. This pattern depicts “individuals with various degrees of doubt and potential resistance to an innovation” (George et al., 2006, p. 40).

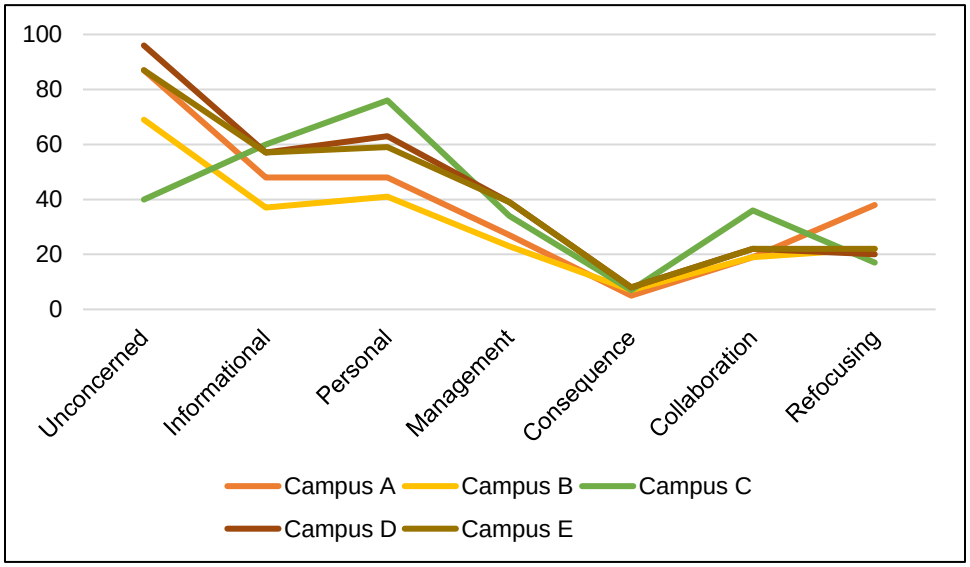

Figure 7. 2016 SoCQ percentile scores by campus.

Frequency data for the number of respondents at each campus and corresponding highest two stages are presented in Table 12 for all three years. Although this study only examined data at the campus level, George et al, (2006) advocate the frequencies of high stage scores can sometimes prove helpful. In this study, the trend of frequencies shows a gradual evolvement through the lower stages on the scale.

Table 12

Highest Two Stages of Concern and Frequency Counts

Campus A	0	1	2	3	4	5	6	Total
2014 Number of Teachers	7	1	0	0	0	0	0	8
2014 Percent of Teachers	88%	12%	0	0	0	0	0	100%
2015 Number of Teachers	8	1	0	0	0	0	0	9
2015 Percent of Teachers	89%	11%	0	0	0	0	0	100%
2016 Number of Teachers	8	0	3	0	0	0	0	11
2016 Percent of Teachers	73%	0	27%	0	0	0	0	100%
Campus B	0	1	2	3	4	5	6	Total
2014 Number of Teachers	6	1	2	0	0	0	0	9
2014 Percent of Teachers	67%	11%	22%	0	0	0	0	100%
2015 Number of Teachers	4	2	1	0	0	1	0	8
2015 Percent of Teachers	50%	25%	12.5%	0	0	12.5%	0	100%
2016 Number of Teachers	5	0	1	0	0	0	0	6
2016 Percent of Teachers	83%	0	17%	0	0	0	0	100%
Campus C	0	1	2	3	4	5	6	Total
2014 Number of Teachers	11	0	3	0	0	2	0	16
2014 Percent of Teachers	69%	0	19%	0	0	12%	0	100%
2015 Number of Teachers	7	0	2	0	0	1	0	10
2015 Percent of Teachers	70%	0	20%	0	0	10%	0	100%
2016 Number of Teachers	10	2	3	0	0	0	0	15
2016 Percent of Teachers	67%	13%	20%	0	0	0	0	100%
Campus D	0	1	2	3	4	5	6	Total
2014 Number of Teachers	3	1	2	0	0	0	0	6
2014 Percent of Teachers	50%	17%	33%	0	0	0	0	100%
2015 Number of Teachers	4	0	0	0	0	0	0	4
2015 Percent of Teachers	100%	0	0	0	0	0	0	100%
2016 Number of Teachers	0	1	2	0	0	0	0	3
2016 Percent of Teachers	0	33%	67%	0	0	0	0	100%
Campus E	0	1	2	3	4	5	6	Total
2014 Number of Teachers	6	4	2	0	0	1	0	13
2014 Percent of Teachers	46%	31%	15%	0	0	8%	0	100%
2015 Number of Teachers	8	0	1	0	0	1	0	10
2015 Percent of Teachers	80%	0	10%	0	0	10%	0	100%
2016 Number of Teachers	9	1	1	0	0	0	0	11
2016 Percent of Teachers	82%	9%	9%	0	0	0	0	100%

Descriptive statistics on stage percentile scores collectively for each year of the study are represented in Table 13.

Table 13

2014-2016 Descriptive Statistics for Stage Percentile Scores

	N	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
2014 Median	52	72.00	57.00	53.50	30.00	7.00	25.00	18.50
2014 Range		95	68	82	79	28	86	66
2015 Median	41	87.00	43.00	41.00	15.00	5.00	16.00	14.00
2015 Range		98	79	91	89	23	81	35
2016 Median	46	84.00	46.50	52.00	27.00	7.00	20.50	21.00
2016 Range		85	68	70	83	31	71	71

Note. Because nonparametric statistical analyses are appropriate for the current study, only median and range are reported as descriptive statistics.

Research Question 2

The second research questions states: What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level annually over the first three years of implementation of a math instructional coaching program in a rural school? (Quantitative).

H_0 There will be no significant differences in the percentile stage scores of the seven Stages of Concern over time for the five campuses as reported on the SoCQ for each campus.

H_a There will be significant differences in the percentile stage scores of the seven Stages of Concern over time for the five campuses as reported on the SoCQ for each campus.

A statistical test, the one-way multivariate analysis of variance (MANOVA), would normally be conducted on these percentile stage scores to determine if any statistical difference exists between campuses (Lund & Lund, 2015). However, the assumptions of normality and sufficient sample sizes are not met by the sample in this study. Instead, a nonparametric Kruskal Wallis test was used to determine if statistically significant differences between campuses were present. The Kruskal Wallis is a nonparametric test that determines if statistically significant differences in groups exist, although it does not indicate where such differences might be present. Typically, a Kruskal Wallis *H* test is used when three or more categorical, independent groups are compared (Lund & Lund, 2015). Phillips (2014) used the Kruskal Wallis procedure to check for statistically significant differences between survey results for twelve schools in a study of teachers' and leaders' perspectives on implementation of professional learning communities.

A Kruskal Wallis test was conducted to determine if there were differences in SoCQ stage percentile scores between campuses for each of the years 2014, 2015, and 2016. Results are reported in Table 14. The null hypothesis was stated as there will be no significant differences in the percentile stage scores of the seven Stages of Concern over time for the five campuses in this study as reported on the SoCQ.

Table 14

2014-2016 Kruskal Wallis Results

	2014 Significance	2015 Significance	2016 Significance	2014-2016 Combined
Stage 0 - Unconcerned	.948	.138	.080	.058
Stage 1 - Informational	.913	.292	.142	.243
Stage 2 - Personal	.858	.213	.045*	.096
Stage 3 - Management	.590	.989	.795	.525
Stage 4 - Consequence	.882	.484	.655	.494
Stage 5 - Collaboration	.603	.673	.793	.216
Stage 6 - Refocusing	.319	.538	.169	.534

Note. Asymptotic significances are displayed due to small sample sizes. The significance level is $p < .05$.

Results of the Kruskal Wallis analysis on 2014 and 2015 SoCQ stage percentile score results did not indicate any statistically significant difference in stage scores between the five campuses. Also, the 3-year combined analysis of SoCQ stage percentile scores did not indicate any statistically significant differences across campuses. Therefore, the null hypothesis is retained.

Results of the Kruskal Wallis analysis on 2016 SoCQ stage percentile scores indicated one statistically significant difference in Stage 2 scores between the five campuses. However, when pairwise comparisons were considered, no statistical significance was determined. Therefore, the null hypothesis was retained.

Figures 8 through 12 illustrate the SoCQ stage percentile scores for each campus over the 3-year study period, providing a graphical profile for each campus.

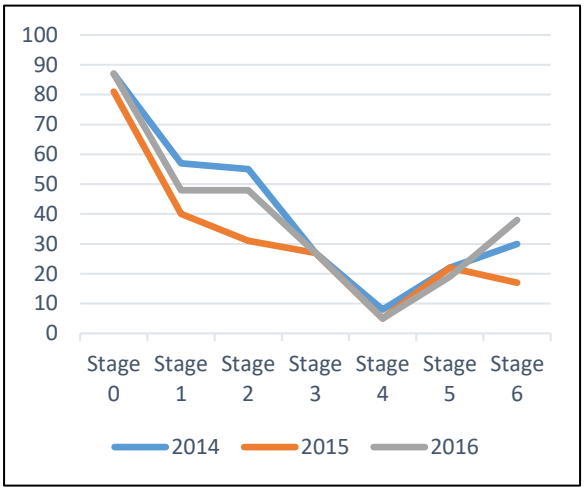

Figure 8. Campus A's SoCQ stage percentiles over three years. 2014, N = 8; 2015, N = 9; 2016, N = 10.

Campus A exhibited high Stage 0 – Unconcerned scores for all three years of the study. The second highest stage of concern in 2014 and 2015 was Stage 1 – Informational, and in 2016 the second highest stage of concern was tied between Stage 1 – Informational, and Stage 2 – Personal. It is interesting to note that in two of the three years, the lines tail up at Stage 6 - Refocusing. George et al, (2006) caution this characteristic on a non-user profile is a warning of resistance to the innovation.

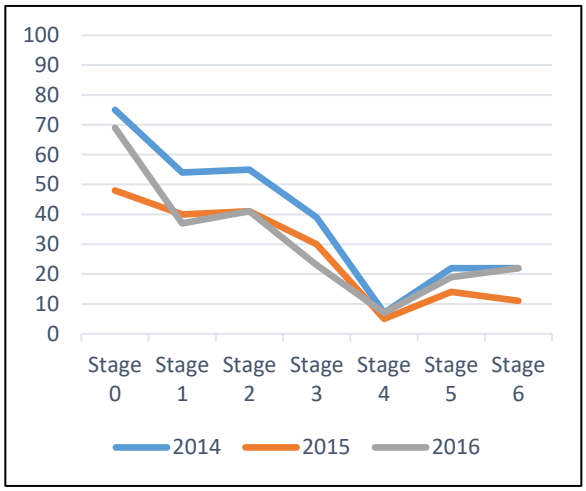

Figure 9. Campus B's SoCQ stage percentiles over three years. 2014, N = 9; 2015, N = 8; 2016, N = 6.

Campus B also indicated Stage 0 – Unconcerned as the highest stage of concern in all three years. However, the second highest stage was Stage 2 – Personal. Personal concerns indicate respondents who are concerned with how the innovation will affect them in their duties and job security. The flat tail, or slight tailing down, of Stage 6 indicates nonusers that do not have suggestions to replace the innovation and may be open to the change of instructional coaching.

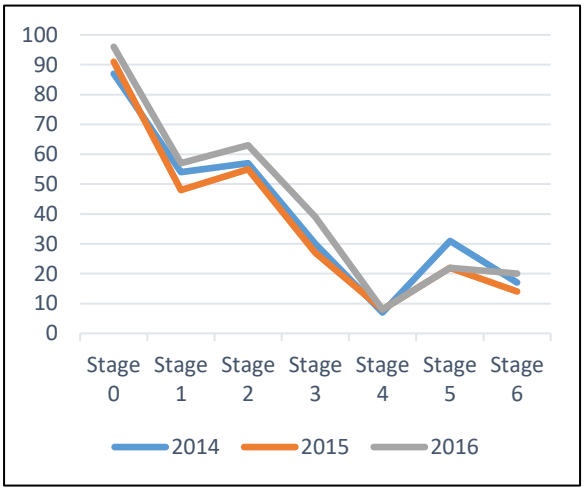

Figure 10. Campus C's SoCQ stage percentiles over three years. 2014, N = 16; 2015, N = 10; 2016, N = 15.

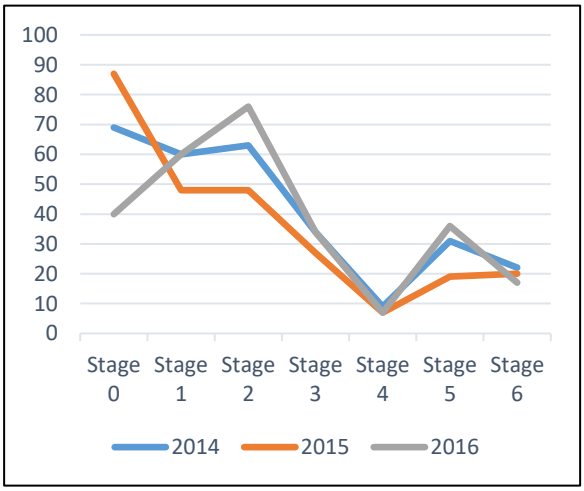

Figure 11. Campus D's SoCQ stage percentiles over three years. 2014, N = 6; 2015, N = 4; 2016, N = 3.

Campus C had higher Stage 0 – Unconcerned percentile scores than any other campus in the study. The second highest concern was Stage 2 – Personal. The scores followed the same pattern each year with a slightly higher Stage 5 – Collaboration score reported in 2014.

A sharply declining Stage 0 – Unconcerned percentile stage score in 2016 make Campus D's graph unique. Again, Stage 2 – Personal was the second highest stage of concern and this percentile score rose significantly in 2016. However, it is difficult to draw conclusions on this campus due to the much smaller sample sizes in comparison to the other campuses.

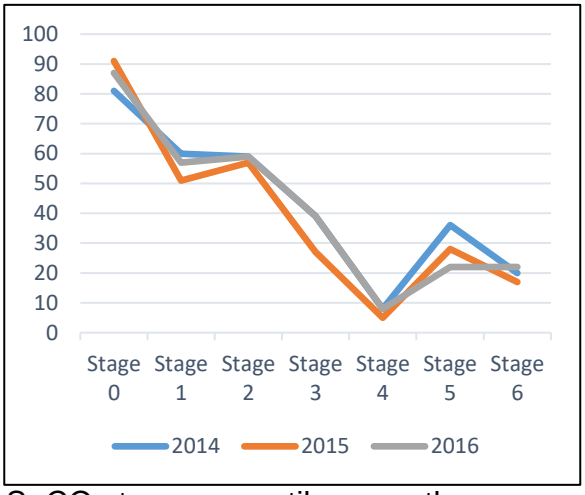

Figure 12. Campus E's SoCQ stage percentiles over three years. 2014, N = 13; 2015, N = 10; 2016, N = 11.

Campus E showed little change in the SoCQ percentile scores over the three-year study period and roughly followed the same trend pattern of highest and second-highest percentile scores as the other campuses.

After examining the frequencies of high stage scores and visually inspecting all campuses' SoCQ graphs over the three years of the study, I wanted to see if there was a difference in mean percentile scores between secondary and elementary campuses.

The stage percentile scores were used for this analysis from all three years. Table 15 shows descriptive data.

Table 15

2014-2016 Combined Percentile Stage Scores by Level: Descriptive Statistics

Level		Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Secondary	Mean	74.5	46	45.167	28.833	6.167	19.667	23.333
	N	6	6	6	6	6	6	6
	Std. Deviation	14.748	8.270	9.347	5.456	1.329	3.141	9.543
	Median	78	44	44.5	27	6	20.5	22
Elementary	Mean	81	55	59.667	32.889	7.444	27.444	18.778
	N	9	9	9	9	9	9	9
	Std. Deviation	17.168	4.975	7.599	5.326	1.130	6.444	2.682
	Median	87	57	59	34	8	28	20
Total	Mean	78.4	51.4	53.867	31.267	6.933	24.333	20.6
	N	15	15	15	15	15	15	15
	Std. Deviation	16.030	7.707	10.875	5.574	1.335	6.543	6.479
	Median	87	54	55	30	7	22	20

A Mann-Whitney *U* test is considered the nonparametric alternative to the independent samples *t* test. It can be used to determine if there are differences between two groups on a continuous or ordinal dependent variable (Lund & Lund, 2015). The two groups for this test were the elementary and secondary campuses and the ordinal dependent variables were the percentile scores for each SoC over the 3-year study period. Table 16 shows test results.

Table 16

Mann-Whitney U Results on 2014-2016 SoCQ Percentile Stage Scores

N = 15	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Mann-Whitney U Test Statistic	38.000	44.500	50.500	38.500	41.500	45.500	17.500
Wilcoxon W	83.000	89.500	95.500	83.500	86.500	90.500	62.500
Test Statistic	38.000	44.500	50.500	38.500	41.500	45.500	17.500
Standard Error	8.309	8.379	8.417	8.121	8.098	8.169	8.301
Standardized Test Statistic	1.324	2.089	2.792	1.416	1.791	2.265	-1.144
Asymptotic Sig. (2-sided test)	.186	.037	.005	.157	.073	.024	.252
Exact Sig. (2-sided test)	.224	.036*	.003*	.181	.088	.026*	.272
Mean Rank Secondary	6.17	5.08	4.08	6.08	5.58	4.92	9.58
Mean Rank Elementary	9.22	9.94	10.61	9.28	9.61	10.06	6.94

Note. Asymptotic significances are displayed. The significance level is $p < .05$. Exact significance is displayed due to small sample sizes.

The Mann-Whitney *U* test determined there were no significant differences in percentile scores between secondary and elementary campuses when SoCQ results were combined for the three-year study period for Stage 0 – Unconcerned, Stage 3 – Management, Stage 4 – Consequence, or Stage 6 – Refocusing. The null hypothesis is retained. The Mann-Whitney *U* determined that there are significant differences in percentile scores between secondary and elementary campuses when SoCQ results are combined for the three-year study period for Stage 1 – Informational ($U = 44.5$, $z = 2.089$, $p = .036$), Stage 2 – Personal ($U = 50.5$, $z = 2.792$, $p = .003$), and Stage 5 – Collaboration ($U = 45.5$, $z = 2.265$, $p = .026$). The null hypothesis is rejected in regard to Stages 1, 2, and 5.

Research Question 3

The third research questions states: How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? (Qualitative).

The Open-Ended Statements of Concern were administered online through SurveyMonkey during the final year of the study. Participation was voluntary and the only identifiable information gathered was the campus to which the respondent was currently assigned. Therefore, no descriptive information other than campus and number of respondents is available. This information is depicted in Table 17.

Table 17

Open-Ended Statements of Concern: Number of Respondents by Campus

	Number of Respondents	Number of Total Math Teachers	Percentage of Math Teachers Responding
Campus A	9	11	82%
Campus B	3	10	30%
Campus C	5	18	28%
Campus D	5	11	45%
Campus E	9	16	56%
Total Respondents	31	66	47%

Interpreting the Open-Ended Statements of Concern is directed to be done with the goal of developing a global picture, "…a gestalt, of the person's concerns. Pinpoint accuracy is not the intent or design of this measure" (Newlove & Hall, 1976, p. 25). In initial coding of respondents' statements, it is encouraged that the reader thinks broadly about the general feeling or attitude of the statement without regard to detail (Newlove & Hall, 1976). As more details are pulled from the statements on subsequent readings, patterns can be detected and statements can be coded to the seven SoC.

Open-Ended Statements of Concern were utilized in a mixed methods study conducted by Scott (2004) in which concerns of superintendents and high school principals about distance learning were examined. The instrument was also used in a study of teachers' concerns about school-based assessment as an element of public assessment (Cheung, 2002).

In first cycle coding, I followed Newlove's and Hall's (1976) suggestions and read over the statements roughly categorizing them into either negative or positive comments and concerns about the instructional coaching program. Of sixty-one total statements, thirty-seven were generally negative and twenty-four were generally positive (*N* = 61, negative = 61%, positive = 39%). Responses were then coded holistically to the seven SoC. This coding is represented in Figure 13.

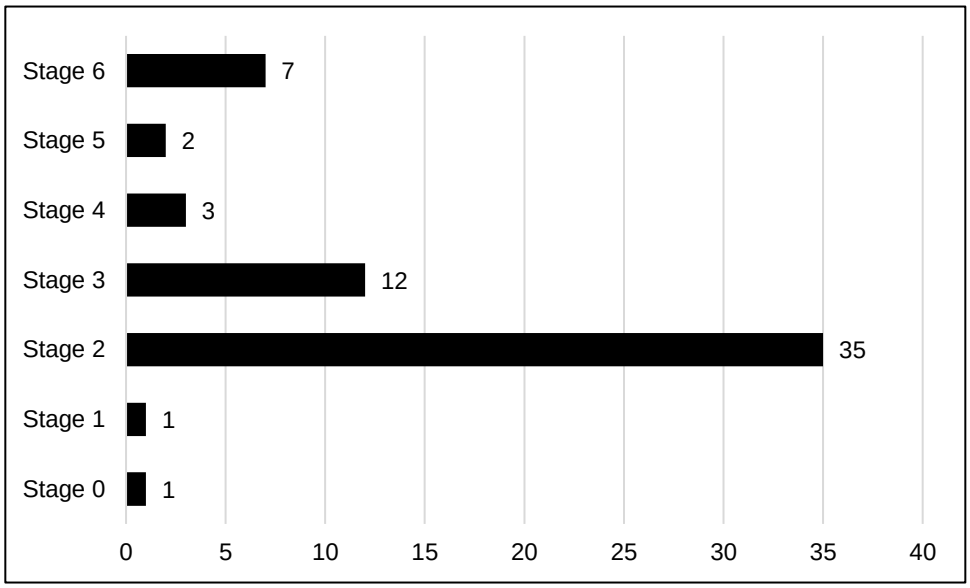

Figure 13. Open-Ended Statements of Concern for all campuses. *N* = 31 respondents, 61 statements.

Table 18 shows examples of respondents' statements and the corresponding SoC to which they are coded.

Table 18

Open-Ended Statements of Concern: Sampling of Respondents' Statements by SoC

Stage		Statement of Concern	Campus
Stage 0	Unconcerned	"I do not have any concerns about Math Coaches."	Campus E
Stage 1	Informational	"Math teachers do not really understand the role these coaches have."	Campus D
Stage 2	Personal	"I am sometimes concerned that I may be evaluated when the coach comes in to my classroom."	Campus B
Stage 3	Management	"I will have to change things and take up time to try ideas that others have about my subject area."	Campus A
Stage 4	Consequence	"The more we worked together the more we began to understand what roles each of us should play for the benefit of the students."	Campus B
Stage 5	Collaboration	"I'm concerned about the structure that we use for collaboration. I believe our coaches do a great job working with teachers individually, but I think there would be greater benefits if the coaches work with grade level teams."	Campus E
Stage 6	Refocusing	"I feel that instructional coaching should be available for all departments and subjects."	Campus A

When examining Open-Ended Statements of Concern coded to stage of concern by campus group, the data show Stage 2 – Personal had the higher frequency of responses while Stage 3 – Management had the second-highest frequency of responses. Highest and second-highest stage scores by campus are represented in Figure 14.

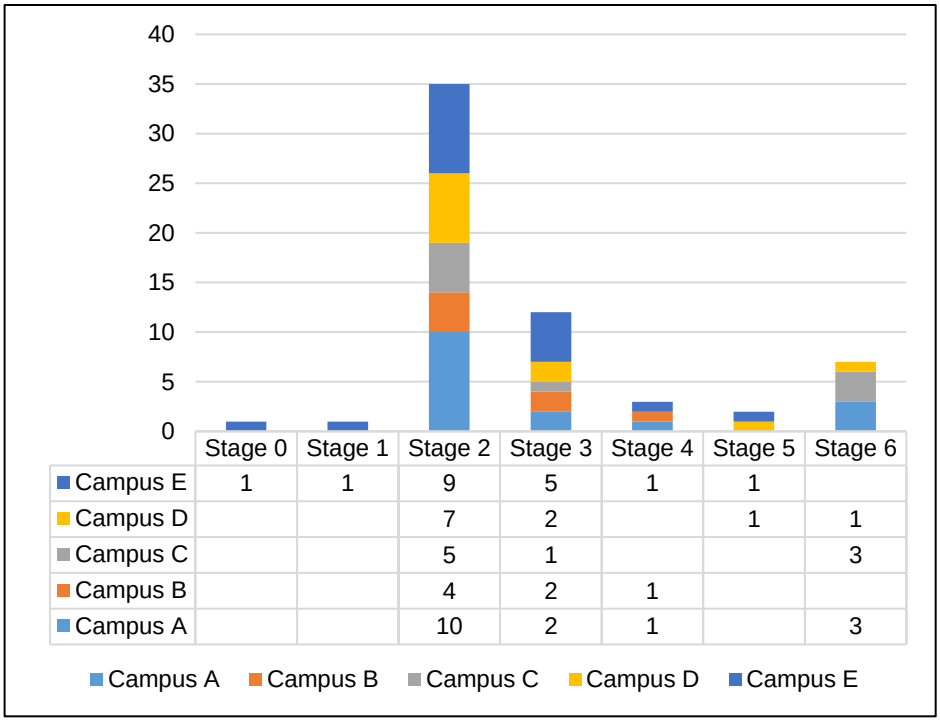

Figure 14. Open-Ended Statements of Concern coded to SoC. N=31 respondents, 61 statements.

During third-cycle coding, causation coding was utilized to determine if any responses referenced any possible rurality factors that may have impacted teachers' concerns about the instructional coaching innovation. Causation coding, according to Saldaña (2013), is typically used by grounded theorists in search for causes or contexts. The current study is not a grounded theory study, so statements were loosely coded to patterns and characteristics reported in rural education as detailed in the literature. For example, Chance and Segura (2009) report on dense staff relationships in small schools where everyone knows everyone else. Burton, Brown and Johnson (2013) report in narrative literary analysis a pattern of rural teachers being resistant to change. Other studies on rural education speak to a lack of resources in rural schools (Hargreaves et al., 2015; Jennings, 1999; Jimerson, 2005). These characteristics

typically associated with rural education contexts were the basis for the causation coding cycle utilized on the Open-Ended Statements of Concern responses.

One respondent from Campus C stated “coaches are in our classrooms to judge our teaching ability and report back to an administrator,” and this statement was coded to the theme of dense relationships between faculty members. One teacher at Campus D spoke of “the relationship and respect I have developed with my individual coach” which again ties to dense staff relationships. In all, 16 phrases or statements were coded to dense staff relationships and were a mix of positive and negative references to those relationships.

The other theme related to rurality that could be inferred from the Open-Ended Statements of Concern responses was that of limited resources. A Campus E teacher expressed that “coaches have too many teachers to visit” while another teacher from the campus reported that she did not feel coaching is “thorough enough.” A teacher from Campus D stated it is “important to have one [coach] on every campus” while several statements from Campus A teachers spoke to the need for instructional coaching in all content areas, not just math. Seventeen different phrases or comments were coded to the limitation of resources as a trait of the rural context.

Research Question 4

The final research question asks: What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? (Qualitative).

Focus group interviews by campus were held during the third year of the study and were conducted in order to triangulate data on the various concerns of teachers and to inquire of teachers their opinions on any relationship between their concerns and rurality factors. The facilitator for the interviews was a professor from a nearby university who had established a working relationship with the district from prior duties. Interviews were voluntary and interview respondents were asked to choose a numbered card upon entrance. All responses during the interview were attributed to a participant's chosen number and in this way protected the identity of the subject. A transcriptionist, unknown to the subjects, was present to type responses and to record the interview audio in order to check the transcript after the interview. Subjects also received a typed copy of the transcript shortly after the interview for member-checking.

Frequency counts for each campus's participation in the focus group interviews is shown in Table 19.

Table 19

Focus Group Interview Participation by Campus

	Campus A	Campus B	Campus C	Campus D	Campus E	All Campuses
Number of Interview Participants	9	2	7	4	2	24
Number of Math Teachers Assigned to Campus	11	10	18	11	16	66
Percentage of Campus Math Teachers Participating	82%	20%	39%	36%	13%	36%

The first interview question asked of each focus group was to express current concerns about the instructional coaching program. Next, the facilitator asked how concerns had changed over the course of the 3-year implementation period. Finally, participants received a copy of the student outcomes unique to rural schools described

in the National Center for Education Statistics report *Status of Education in Rural America* (Provasnik et al., 2007) and were asked if any of the outcomes might relate to their concerns about instructional coaching.

First cycle coding of interview responses assigned responses to broad descriptive categories of positive or negative based on the holistic statement. Second cycle coding refined the categorical coding by themes of concerns. Responses were then coded a third time seeking information that could be associated with the student outcomes from the report *Status of Education in Rural America* (Provasnik et al., 2007). Since the first two interview questions were directly related to concerns, these responses were also coded to SoC.

Question 1 yielded a total of 57 responses from all campuses in the interviews. Twenty-five of those were positive concerns such as "…recently, we were teaching perimeter and needed help with the TEKS [curriculum standard] for perimeter. It was really good just to ask someone [the coach] who knows your TEKS in and out." Other positive concerns centered around having different perspectives to look at problems, assistance with data, and reflection on practice. Fourteen concerns were negative and covered concerns such as the coach's role not being defined and professional trust as an issue. One respondent said, "…we feel like we have a target on our back [*sic*]…we're the bad kids who have to have coaches…" Another respondent expressed concern about the role of the coaches "…because nobody knew what they were supposed to be doing." Interestingly, 18 responses were not classified as negative or positive, but suggested ways in which the instructional coaching program could be improved. One respondent commented she thought "…it would be good if we had an

instructional coach that could just help us all [all content areas]". Another respondent said, "Sometimes in talking with someone I'll say…I'll just call my coach…and they're like…if I had a coach."

Forty-five responses were recorded for the second interview question over how concerns had changed over time. Thirty of those comments were positive and 15 were negative. Positive comments centered around a relationship of trust, a more-defined role for the coach, and the different perspective the coach brings to the classroom. As one respondent said, "…she points out all of the positive things that she notices about your lesson and the strategies you're using. I feel like, honestly, she's more like a cheerleader, like she's very encouraging and that's super helpful, especially with a new teacher." Another spoke of the level of comfort utilizing a coach: "She's not there to judge me at all, she's there to help me." The negative responses on this question reflected the lack of trust still existing between the coach and teacher: "…the professionalism and comfortableness of coaching isn't quite there." Another said, "I think we get a little territorial, too. It's your notes, your room, your lesson, your kids. It's hard to let someone walk in your room without feeling like [they are being] evaluative."

When matching responses to SoC from the first two questions of the interview, statements did not closely mirror the SoCQ results. Figure 15 shows the concerns voiced by interview participants mapped to SoC. No Stage 0 – Unconcerned or Stage 1 – Information concerns were voiced. The majority of concerns were at the Stage 2 – Personal or Stage 3 Collaboration. Table 20 depicts the highest and second highest SoC by campus.

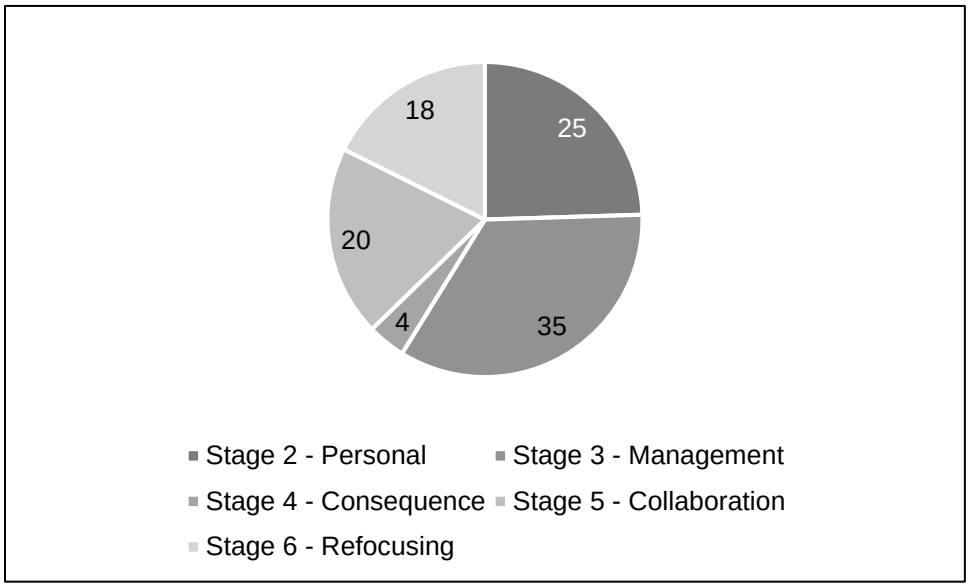

Figure 15. Interview responses mapped to Stages of Concern. N = 24. Primary and secondary stages are both mapped and treated equally.

Table 20

Two Highest SoC by Campus Based on Focus Group Interviews

	Campus A N = 9	Campus B N = 2	Campus C N = 7	Campus D N = 4	Campus E N = 2
Stage 0 - Unconcerned					
Stage 1 - Informational					
Stage 2 - Personal	X	x	x	X	x
Stage 3 - Management		X	X	x	X
Stage 4 - Consequence					
Stage 5 - Collaboration					
Stage 6 - Refocusing	x				

Note. X denotes highest stage score while x denotes 2nd-highest stage score.

The final question of the interview yielded forty-four responses about seeing any relationship between the concerns of instructional math coaching in the district and the student outcomes of the *Status of Education in Rural America* (Provasnik et al., 2007). Four of those responses stated there was no connection between the concerns for

instructional coaching and the report. Distribution of responses is represented in Figure 16.

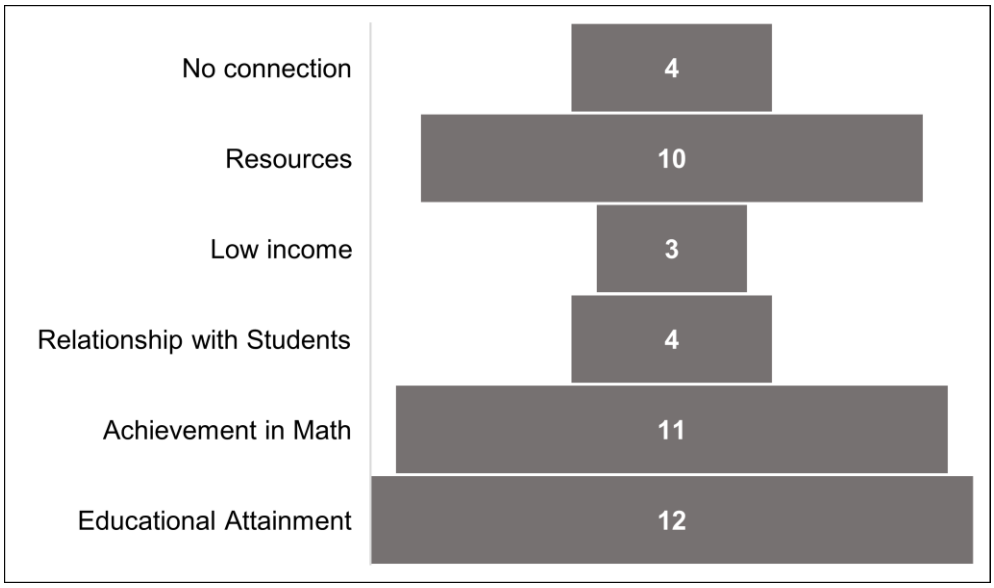

Figure 16. Concerns of teachers mapped to student outcomes in the *Status of Education in Rural America* (Provasnik et al., 2007).

These responses point to the possibility of teachers' concerns for the innovation of instructional coaching being related to factors of rural context. The largest categories of responses related to rurality include limited resources (N = 10), math achievement (N = 11), and educational attainment (N = 12). The coding of these responses are reported by campus in Table 21.

Table 21

Rurality Coding by Campus for Focus Group Interviews

	Math Achieve-ment	Educational Attainment	Low Income of Family	Limited Resources	Dense Relation-ships	No Connection
Campus A (N = 9)	2	1		2	2	4
Campus B (N = 2)		3		1		
Campus C (N = 7)		1	1	3	2	
Campus D (N = 4)		5	2	3		
Campus E (N = 2)		2		1		

Convergence of Findings

Teddlie and Tashakkori (2009) propose the use of mixed methods when the study requires multiple perspectives and the use of multiple methods to gain a deeper understanding. Further, Teddlie and Tashakkori (2009) advocate mixed methods studies are especially appropriate when practitioner-based. In this study, central district administrators measured teachers' concerns and attitudes to support the implementation of an instructional coaching innovation in the area of math. In order to study such a small sample as this rural district, multiple methods and measures of data collection were necessary.

Findings from the SoCQ data for 2014, 2015, 2016 and findings on stages of concern gathered from Open-Ended Statements of Concern and focus group interviews are charted in Table 22. While findings on the three years of SoCQ data are consistent and slowly evolving, the findings from the Open-Ended Statements of Concern result in apprehensions higher levels along the SoC continuum. Focus Group Interview findings on concerns are at even higher levels along the SoC continuum.

Table 22

Convergence of Quantitative and Qualitative Data

	SoCQ 2014	SoCQ 2015	SoCQ 2016	Open-Ended Statements of Concern	Focus Group Interview
Stage 0 - Unconcerned	A, B, C, D, E	A, B, C, D, E	A, B, D, E		
Stage 1 - Informational	a, e	a, c*	a*, c		
Stage 2 - Personal	b, c, d	b, c*, d, e	a*, b, C, d, e	A, B, C, D, E	A, b, c, D, e
Stage 3 - Management				b, d, e	B, C, d, E
Stage 4 - Consequence					
Stage 5 - Collaboration					
Stage 6 - Refocusing				a, c	a

Note. An asterisk denotes a tied score between two stages. Each campus's highest stage score is represented by a capital letter while 2nd highest stage score is represented by a lowercase letter. For example, Campus A's highest scores are represented by "A" while the 2nd-highest scores for Campus A are noted by the letter "a".

While these findings are not conclusive, they do offer a richer view and perspective into teachers' concerns than a single measurement might. Creswell and Plano Clark (2011) describe the strengths of converging quantitative and qualitative data as triangulation, corroboration, and validation of data. By comparing, converging, and synthesizing all findings together, a more complete understanding of the phenomenon can be examined (Creswell & Plano Clark, 2011). In a study in which the sample sizes are as small as the current study, I felt it necessary to combine different sources and types of data in order to gain a richer perspective of teachers' concerns. I also wanted to see if rurality issues would be significant enough to yield findings.

Summary

This mixed methods study utilized three years of SoCQ data from a rural district in north Texas to examine teachers' concerns during implementation of an instructional coaching program for math. The data were compared across the seven SoC and the five campuses in the district to determine if statistically significant differences exist. The Kruskal Wallis test was used for analysis since the assumptions for MANOVA were not met. The Kruskal Wallis test results did not show statistical significance across campuses nor across the three-year time period. I then grouped the data by secondary campuses (Campus A and Campus B) and elementary campuses (Campuses C, D, and E) for further analysis. A Mann Whitney *U* test was useful in associating percentile scores across stages for comparing secondary campuses to elementary campuses. There were statistically significant differences determined in teachers' concerns from Stages 1 – Informational, 2 – Personal, and 5 – Consequence when comparing secondary campuses to elementary campuses.

Qualitative data were explored through the Open-Ended Statements of Concern and the coding of responses to the seven SoC across campuses. The data was also examined for connections to rurality and coded for causation. Two themes emerged in the findings: connections to dense relationships in rural schools and to limited resources. Focus group interview data by campus was coded for categories and themes and aligned to the seven SoC to validate findings from the SoCQ and the Open-Ended Statements of Concern. Themes of rurality influences were also coded and resulted in factors of educational attainment and limited resources emerging as findings of contextual influence.

These findings will be discussed and suggestions made for further research in the subsequent and final chapter of this study. While the findings and conclusions drawn may not be generalizable to other school districts due to the small sample sizes, they can help to enrich the field of rural educational research and how implementation of an innovation impact teachers' concerns.

CHAPTER 5

CONCLUSION

Introduction

The purpose of this parallel convergent mixed methods case study was to examine teachers' perceptions and concerns during the three-year implementation of an instructional coaching program for math in a rural school district in north Texas in order for administration to provide adequate teacher supports for the process of change. Adding to the literature on rural education, this study examines how the rural context may influence teachers' concerns and attitudes during the change process. The literature review detailed existing research in rural education, instructional coaching as a means of embedded professional learning, and the use of CBAM as a school change model.

Quantitative data were gathered through annual administration of the SoCQ over three years and were statistically analyzed through the Kruskal Wallis and Mann-Whitney *U* tests to determine any statistically significant differences between campuses involved in the study. The Kruskal Wallis pointed to only one finding as statistically significant, and upon further *post hoc* testing, the null hypothesis was retained. The Mann-Whitney *U* test did indicate statistically significant differences between elementary and secondary campuses on Stages 1, 2, and 5 of the SoCQ with elementary campuses' scores indicating progression along the SoCQ continuum of stages at a slightly quicker pace than secondary campuses.

Qualitative data were collected through the Open-Ended Statements of Concern and focus group interviews of math teachers by campus during the final year of the

study. Data were coded to align with SoC and thematically examined for parallels to the student outcomes found in the *Status of Education in Rural America* (Provasnik et al., 2007). Analyses of qualitative data indicated a faster rate of progression through the SoC continuum than was reported on the SoCQ and possible ties to rurality factors of educational attainment, limited resources, and density of relationships.

In this chapter, the findings of the study are discussed in more depth as related to the study research questions and connected with the existing research literature. Implications of the converged findings are examined and additional areas of research are explored.

Research Question 1

Research Question 1 asked: What are the stages of concern with highest relative intensity for each campus as expressed by teachers on the Stages of Concern Questionnaire measured annually in a rural school as an instructional coaching program for math undergoes the first three years of implementation? To address this question, data from three annual administrations of the SoCQ were obtained from the district as *ex post facto* data.

Summary of Findings

Examination of the two highest percentile stage scores over the three years of the study indicate concerns concentrated at stages zero, one, and two on the SoC continuum. When examining the highest stage scores for each campus, findings show all five campuses had Stage 0 – Unconcerned as the highest stage of concern in 2014 and that pattern held true during the second year of the study. During the third year, only one campus – Campus C – had their highest stage score in a different area than

Stage 0 – Unconcerned. The relative intensity of a high stage score is judged by the relativity to the 99th percentile. In 2014, though all five campuses indicated stage 0 as the highest stage, Campuses A, D, and E had percentile scores above 80. In 2015, Campuses D and E has percentile scores at stage 0 above the 90th percentile indicating a high level of preoccupation with other things. In 2016, Campus D had a percentile score of 96 on stage 0.

The second highest stage score for all three years of the study was either Stage 1 – Informational or Stage 2 – Personal. In 2014, Campus A and E indicated second-highest stage scores for Stage 1 – Informational. George et al. (2006) report high Stage 1 – Informational concerns are indicative of respondents who need or want more information about the innovation, not about the level of knowledge of the respondents. In 2015 and 2016, Campuses A and C had second-highest stage scores for stage 1.

Discussion

High Stage 0 – Unconcerned scores are indicative that the respondent has a number of other tasks, initiatives, or concerns that are unrelated to the innovation (George et al., 2006). The SoCQ was administered to teachers in May of each year of this study. Indeed, with May typically being the last month of the school year in Texas, teachers are inundated with other concerns such as state testing, end-of-year administrative tasks, and students eager to be free of school demands during the summer. High scores in stage 1 indicate a high preoccupation with other matters (George et al., 2006).

While the unconcerned stage dominated the highest stage of concerns, second-highest stages were spread between the informational stage and the personal stage.

Profiles of high scores at stages 0, 1, and 2 are the most prevalent in all the research conducted with the SoCQ. This distinctive pattern profile indicates a typical nonuser (George et al., 2006). This points to the conclusion that the respondents in this study are nonusers of the coaching innovation. High Stage 1 – Informational concerns, in this study, may indicate the definition of the coaches' roles and responsibilities lacked clarity and teachers were struggling with knowing how best to utilize the instructional coaches. Fullan and Knight (2011) state that one of the ways schools can squander coaching efforts is to not clearly define the role of the coach. Grant and Davenport (2009) recommend the principal should establish norms for working with the coach. In this study, three instructional math coaches were deployed across five campuses and the central office played an important role in defining the coaches' work and responsibilities. If the definition of the coach was unclear, or if the central administrators' definition did not align with the campus principals' definitions, high stage 1 scores could result.

Returning to the distinctive campus profiles in which stages 0, 1, and 2 are the highest stages, caution should be used when assigning labels such as nonuser. The study examined campus profiles, not individual's highest stages of concern, and group labels often do not favor the individual teachers. There does appear a gradual evolvement and progression through the first stages when campus profiles are compared. This progression may not have happened at the rate expected by administrators in the district, but is does appear to be happening and showing progress.

Research Question 2

The second research question inquired: What patterns and trends emerge over time as the Stages of Concern Questionnaire data is examined at the campus level

annually over the first three years of implementation of a math instructional coaching program in a rural school? Investigating this question required use of the district's data from three annual administrations of the SoCQ as *ex post facto* data. The data were examined in campus profile formats and statistically compared for differences.

Findings

A non-parametric Kruskal Wallis test was used to determine if statistically significant differences between campuses existed or if there were statistically significant changes over the three-year study period. The analyses did not result in any statistically significant findings. There was a brief glimmer of a finding when the Kruskal Wallis results were examined for 2016. The test statistic indicated a small significance in Stage 2 – Personal concerns across campuses. However, a Mann-Whitney *U* was conducted as a *post hoc* test for pairwise comparisons and the finding did not support significance.

When campuses were sorted into two groups - secondary (Campuses A and B) and elementary (Campuses C, D, and E) – and their scores were combined for all three years, comparison of stage scores through a Mann-Whitney *U* test did indicate statistically significant differences between secondary and elementary campuses at three stages. Stage 1 – Informational ($U = 44.5$, $z = 2.089$, $p = .036$), Stage 2 – Personal ($U = 50.5$, $z = 2.792$, $p = .003$), and Stage 5 – Collaboration ($U = 45.5$, $z = 2.265$, $p = .026$) all indicated a higher stage score or relative concern at the secondary level than the elementary level. For these stages, the null hypothesis was rejected in regard to Stages 1, 2, and 5 when all percentile stage scores were combined for the three-year study period and campuses were sorted into two groups: elementary and secondary.

Discussion

Rush and Young (2011) found in a study of Wyoming schools that elementary teachers are more receptive to coaching efforts than secondary teachers. While the stage scores in this study were statistically higher at the elementary campuses than the secondary campuses, the elementary campuses progressed through the continuum of stages at a faster pace. Many aspects from the Rush and Young (2011) study are similar to the current study. For example, campus contexts on rurality and populations were similar. Coaches were expected to work across multiple campuses in both studies. However, the total sample sizes in the Rush and Young (2011) study were much larger (N = 1,644) than in this study (N = 52). While trend data in the Rush and Young (2011) study indicated a clear difference in attitudes toward coaching between elementary and secondary teachers, there is not enough strength in the findings of this study for the phenomenon to be confirmed.

Differences in Stage 1 - Informational scores between secondary and elementary (p = .036) might be due to a more clarified understanding of the coaches' roles and responsibilities at the elementary campuses. It is interesting to note an expanded description of the informational stage by the authors of the SoCQ.

> The individual indicates a general awareness of the innovation and interest in learning more details about it. The individual does not seem to be worried about himself or herself in relation to the innovation. Any interest is in impersonal, substantive aspects of the innovation, such as its general characteristics, effects, and requirements for use (Newlove & Hall, 1976, p. 8).

Though the idea of receptiveness at the secondary versus elementary levels may be worthy of investigation, the significant statistic found at stage 1 may just be a difference in interest in the innovation.

Stage 2 – Personal also had a statistical significance at the elementary and secondary levels (p = .003). When examining the campus profiles, stage 2 percentiles are tightly aligned during 2014, the first year of the innovation (Campus A = 55, Campus B = 55, Campus C = 63, Campus D = 57, Campus E = 59). It would be common during the first year of an innovation for respondents to be "…analyzing his or her relationship to…" the innovation (Newlove & Hall, 1976, p. 8). In 2015 and 2016, the difference between mean percentile scores in stage 2 is more apparent between secondary (μ = 45.167) and elementary (μ = 59.667). This indicates the relative intensity of personal concerns is higher at the elementary campuses as opposed to the secondary campuses. Conjecture might speculate there is a relationship between low informational and low personal scores and a relationship between high informational and high personal scores. Newlove and Hall (1976) state, "Because of the developmental nature of concerns, the second highest Stage of Concern often will be adjacent to the highest one" (Newlove & Hall, 1976, p. 34).

The final statistical significance found with the Mann-Whitney U test comparing mean percentile scores between elementary and secondary campuses is the Stage 5 – Collaboration stage (p = .026). Stage 5 scores were not the highest or second-highest stage scores for any campus during any of the three years of SoCQ results. Again the relative intensity for elementary campuses was higher than the secondary campuses (elementary μ = 27.444, secondary μ = 19.667). The description of the collaboration stage by Newlove

and Hall (1976) reads, “The individual focuses on coordinating and cooperating with others regarding use of the innovation” (p. 8).

Because sample sizes were so small in this rural school and because nonparametric tests were used, any statistically significant findings are not generalizable to the general population. However, there are trends and patterns in this data that can be helpful to administrators in this small school.

First, the trend of slowly evolving progression on the SoC continuum is both reassurance and an alarm. It is reassuring because progression is being shown over time that math teachers are gradually adjusting to the change innovation of instructional coaching. But the trend is also alarming because the investments of financial and time resources of a small district to implement an innovation of instructional coaches are sizable and the payoff for that investment is painfully slow in evolving. Many districts do not have such resources of time and finances to weather the slow-evolving change process at the rate exhibited by this district.

Secondly, the pattern of SoCQ data indicates higher relativity of concerns for elementary campuses versus secondary campuses. This pattern of data requires a careful touch to provide teachers with the level of support appropriate for their needs. Mangin and Dunsmore (2015) report on the vital importance of proper framing of an instructional coaching program so that teachers and coaches can experience success. Fougere (2014) finds that the relational trust between coach and teacher happens differently with every teacher and every coach…and on different schedules. Marzano and Simms (2013) elaborate on

using differentiated coaching by varying types of conversations (e.g., reflective, facilitative, directive), taking into account a teacher's level of experience, and being mindful of the level of the willingness to change. In *Implementing Change: Patterns, Principles, and Potholes,* Hall and Hord (2011a) warn that communication is never done. Administrators' support of change processes is never done, either.

Research Question 3

The third research questions asked: How do the concerns, as expressed by SoCQ respondents in Questions 1 and 2, align with written responses to the Open-Ended Statements of Concern about instructional coaching administered in Year 3? Data collected for addressing this question were responses on an online administration of Open-Ended Statements of Concern asking math teachers who participated to state any concerns related to the instructional coaching innovation in their own words.

Findings

Responses to the Open-Ended Statements of Concern were gathered through an online survey and participation rates varied widely by campus (Campus A = 82%, Campus B = 30%, Campus C = 28%, Campus D = 45%, Campus E = 56%). Data underwent several cycles of coding. First-cycle coding was categorical into negative and positive concerns (negative = 61%, positive = 39%). The statements were then coded a second time to align with the seven SoC. Of sixty-one total statements, 35 were coded to Stage 2 – Personal (highest stage) and 12 statements were coded to Stage 3 – Management (second-highest stage). Then a third cycle of coding pulled out any information that might be linked to the rural context of the district. Thirty-three phrases

or statements were coded to rurality factors. Sixteen of those were coded to dense relationships in rural settings and seventeen statements were coded to limited resources in rural schools.

Discussion

The word *concern* connotes negativity. However, when looking at the word as neutral, it can be interpreted as something that matters and is of import. I chose that neutral lens as I sorted concerns into positive and negative categories. Positive concerns included statements such as this one from Campus E, “I'm concerned about the structure that we use for collaboration. I believe our coaches do a great job working with teachers individually, but I think there would be greater benefits if the coaches work with grade level teams.” The tone of the statement is in favor of the instructional coaching program. This type of statement could be a signpost to administrators to provide multiple formats for coaching. Coaching individually is only one format for coaching. Other formats would include grade level or departmental groups to write common assessments. Lesson planning with a few teachers during a common planning time would be another format. Other formats include data examination in professional learning communities, brief polls or surveys in faculty meetings, and after-school book studies on meaningful topics.

Negative statements were those that exhibited an opposition to the program such as this statement from Campus A, “Instructional coaches can be a spy for the curriculum director to see if they can possibly find us making a mistake somewhere. This makes us nervous, even though we are complying to all that has been asked/ expected of us.” This comment has little to do with the actual coaching innovation, but

instead relates to the trust levels between teachers and administrators. Administrators could intervene in these situations with more visibility on the campus and in the classroom, encouragement of teachers to try new strategies and ideas, compliments to a teacher for taking a risk, and what Hall and Hord (2011a) refer to as a one-legged interview. These short, hallway chats are brief conversations in which the administrator checks in with the teacher on how they are using the innovation and how they are progressing with the change process. Based on these short-lived dialogues, the administrator can determine additional ways to support the teacher.

Most of the concerns voiced through the Open-Ended Statements of Concern aligned with Stage 2 – Personal concerns. One comment related to personal concerns came from a participant at Campus A who stated he needs his coach to give "…feedback. I need support from the coach to keep me honest - to make sure that the strategies that have been implemented remain in effect." Another personal concern voiced from a respondent at Campus C again points to relational trust as an issue: "I have been concerned that the coaches are in our classrooms to judge our teaching ability and report back to an administrator." While the issue in the first comment can easily be addressed by the administrator brainstorming with the coach to find positive ways to give feedback, the second personal concern implies a deeper rooted problem: relational trust between teachers and administrators. How this district addresses relational trust may determine the success or failure of the instructional coaching innovation. Administrators would benefit from taking a cue from coaching as a process. As Tschannen-Moran and Tschannen-Moran (2010) point out in *Evocative Coaching*, "…coaching emphasizes listening more than talking, asking more than telling, and

reflecting more than commenting" (p. 5). As a central office administrator in this district, this is a humbling reminder that leadership is about servanthood.

Comments in the Open-Ended Statements of Concern that could be construed as rurality factors relative to dense relationships included this statement from a teacher at Campus D: "I think my situation is unique to the relationship and respect I have developed with my individual coach because I don't feel the same desire to learn from all the coaches." The comment speaks to resistance to trusting someone unknown. Chance and Segura (2009) spoke of these dense relationships in their study on a coach's attempt to gain entry into classrooms. The insider-versus-outsider mentality is a construct that is deeply embedded in many rural communities. Family, community, social, and professional relationships bleed over into one another. Again, time and effort must be afforded to the trust levels between coach and teacher.

The other rural factor indirectly addressed by the data collected for this research question points to the influence of limited resources. A sampling of comments alluding to limited resources include "Coaches are not always available" (Campus D), "I would like to see coaching expanded to other subjects. Why is it only available for math?" (Campus A), and "Why is there not a reading, writing, and/or science coach since all content areas are tested at both elementary and secondary levels?" (Campus C).

The overall take-away from the Open-Ended Statements of Concern is that the data reinforce the findings from the SoCQ, but the statements offer so much more insight into teachers' thinking and perspectives. This insight could assist administrators in knowing how to take corrective actions.

Research Question 4

The final research question asks: What relationship, if any, exists between concerns about instructional coaching and the situational qualities of a small rural school context as expressed by teachers in campus-level group interviews occurring in Year 3? Interviews were conducted during the spring of the third year of the study in order to provide triangulation of teachers' concerns from previous data and to tease out additional information related to the rural context. Participants were given a copy of the student outcomes from the National Center for Education Statistics' report *Status of Education in Rural America* (Provasnik et al., 2007) and asked if any of their concerns were related to such outcomes.

Findings

Participation rates for the interviews varied widely by campus. Campuses A through E had the following numbers of participants respectively: 9, 2, 7, 4, 2. There were a total of 24 respondents. Responses underwent multiple cycles of coding such as categorical coding for positive and negative responses, descriptive coding aligned to the SoC, and causation coding to rural factors.

SoC-related data, sorted into stages, showed more progression along the SoC continuum than did any other data collected in this study. Primary and secondary stages of concern are as follows: Campus A – stages 2 and 6, Campus B – stages 3 and 2, Campus C – stages 3 and 2, Campus D – stages 2 and 3, and Campus E – stages 3 and 2.

On rural-related connections, comments were associated with the following categories: math achievement (n = 11), educational attainment (n = 12), low income of

family (*n* = 3), dense relationships (*n* = 4), limited resources (*n* = 10), and four comments were stated that there was no association between concerns of teachers on instructional coaching and rural student outcomes. A total of 44 statements or phrases were coded to rurality factors.

Discussion

The coding revealed that comments made by participants aligned to slightly higher stages of concern along the SoC continuum than previous data indicated. This set of data was the only set of conversational data. Perhaps it is human nature to estimate ourselves at higher progressions that we are in reality, especially when speaking with others. It is interesting to note that the campus with the most indications of resistance – Campus A – voiced enough suggestions for improvement to the coaching innovation to warrant primary concerns at Stage 2 – Personal, and Stage 6 – Refocusing as their secondary stage of concern. Newlove and Hall (1976) give the following information on participants with primary concerns in stages 2, 3, or 4 and secondary concerns in stage 6.

> On the basis of the second highest stage scores, the authors infer that individuals with high Stage 6 concerns appear to fall into three groups.
>
> - Those who have very high concerns about effects of the innovation on students (second highest score is Stage 4)
> - Those who are very highly concerned about the effect on themselves (second highest score is Stage 2)
> - Those who are very busy, either with the innovation itself or, as is often the case, with other job demands (second highest score is Stage 3) (Newlove & Hall, 1976, pp. 36-37).

This same campus showed a tailing-up of stage 6 concerns in two of the three years on their SoCQ graphs.

The association of concerns to rural student outcomes provided some interesting data. First, there were four comments made about no connection between teachers' concern and the rural student outcomes. As Greenough and Nelson (2015) point out, the very definition of *rural* complicates the issue of rural research in education. Koziol et al. (2015) identify the need for a clear definition since *rural* is a theoretical construct. While this district is classified as Rural Fringe by the U.S.D.E. (U.S. Census Bureau, 2011), it is five miles from an urbanized area. Employees in the district do not necessarily *feel* like they work in a rural school.

Other rural-related factors identified included limited resources and families with low incomes. J. Johnson and Howley (2015) write in their critical policy analysis that federal policies are ignorant of "rural realities" (p. 235). While many districts face fiscal shortfalls and tight budgets, rurality exacerbates this common problem. A recent biennial report analyzing the context and conditions of rural education in each state found student enrollment is actually growing in rural schools, but that enrollment growth also increases the levels of socioeconomic disparities (J. Johnson et al., 2014). Instructional coaching is an expensive endeavor and an investment in human capital. If done well, it can support high-quality professional learning for teachers and enrich the education of students.

Dense relationships are a theme that has recurred in the findings of this study, and several interview comments have alluded to these relationships – both positive and negative. Hartman (2013) studied a first-year rural instructional

coach and her struggles to gain entry into classrooms. Findings indicate insider-versus-outsider status as an issue. The coach had to recreate herself by developing a new identity, and though she had been well-respected in her previous role she had to reestablish respect. One tool she used was coaching through a variety of formats such as co-teaching, co-planning, individual coaching, coaching through correspondence, and providing professional development (Hartman, 2013). Providing services through multiple forms of coaching can help establish the identity for new instructional coaches.

Convergence of Findings and Discussion

This study used a parallel convergent mixed methods study in order to measure concerns of teachers during the implementation of an instructional coaching program for math in a rural school. Quantitative data included three years of data from annual administrations of the SoCQ. Included in qualitative data were written responses to the Open-Ended Statements of Concern and focus group interviews held for each of the five campuses. Data are cross-tabbed in Figure 17 to illustrate the findings from the various data analyses.

No statistical significance was found when nonparametric analyses were performed to compare SoCQ stage scores across the five campuses in the study. No statistical significances were found when nonparametric analyses examined SoCQ stage scores across the three years of the study. However, a statistical significance was found when sorting campuses into elementary and secondary groups and comparing the mean stage scores for each group through a Mann-Whitney *U* test. The sample sizes in this case are not large enough for generalization to other similar settings. Rush

and Young (2011) saw similar findings in regards to elementary teachers having a slightly more favorable view on coaching.

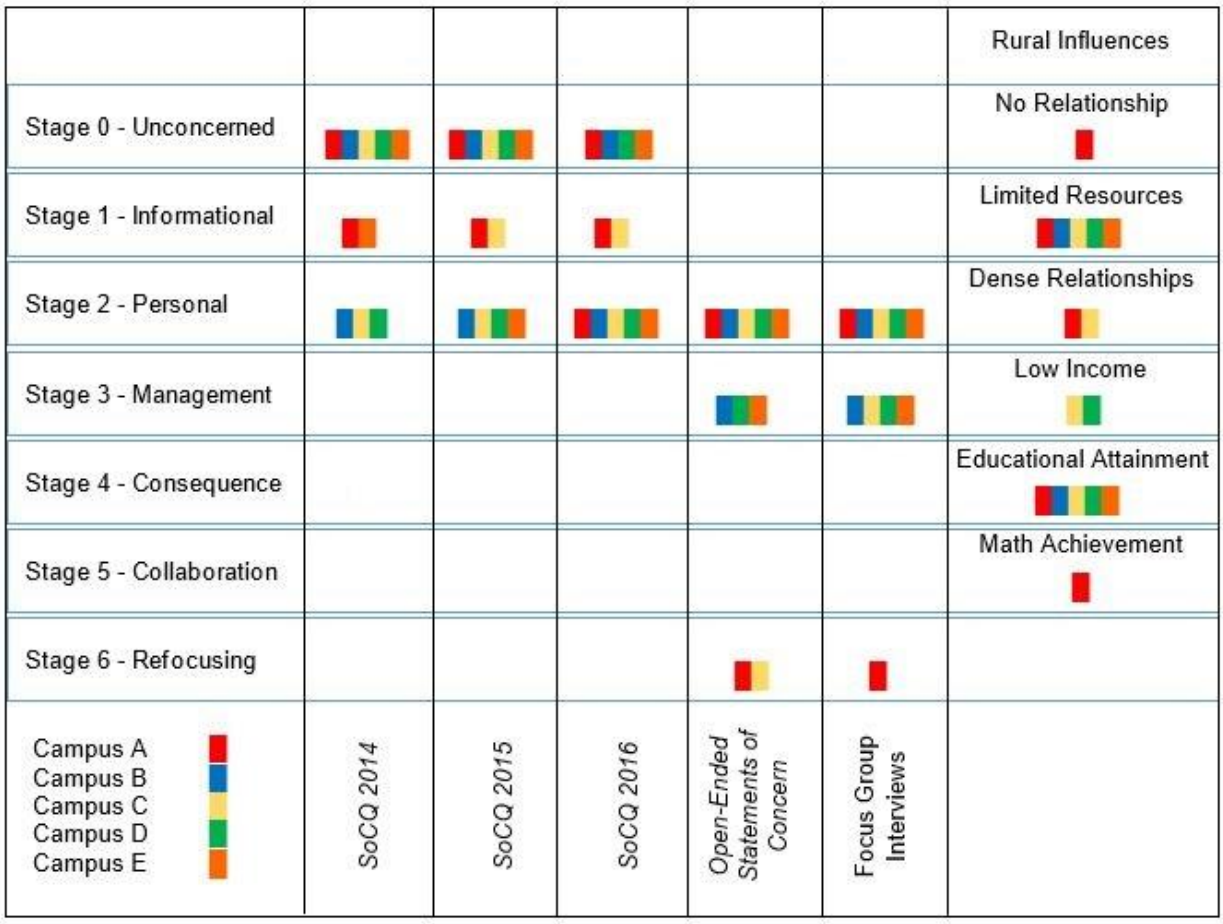

Figure 17. Illustration of converged findings. The two highest stages of concern are included, without distinction, for each campus on each year's SoCQ data, the Open-Ended Statements of Concern, and the focus group interview data.

The rural context may have affected the teachers' concerns about the implementation of instructional coaching in this study. Navigating the dense staff relationships, cited as a common trait to rural schools (Chance & Segura, 2009), and collegial trust and openness are essential components effective administrators support during change (Hulpia, Devos, & Van Keer, 2011). Effective support is an ongoing need in most change efforts, but imperative to small school settings in which efforts greatly depend on relationships.

While change can be supported in many ways by administrators at the district and campus levels, failure to support the emotions inherent in change processes may inadvertently act as an undercurrent to sabotage change efforts. Hargreaves (1998) writes that teaching is an emotional experience and school reformers should consider teachers' emotional dimensions when framing support for change. The findings from this study support that supposition. Instructional coaching is an emotionally charged endeavor. Both the coach and the teacher must approach instructional coaching with a partnership mindset and allow trusting relationships to develop (J. Knight, 2004).

Change facilitation should be supportive of individual teachers as well as teacher groups. Returning to some of the basic tenets of the CBAM change model, Hord, Rutherford, Huling, and Hall (2008) remind us that the focus of change facilitation should be on "individuals, innovations, and the context" (p. 6). Intervention strategies appropriate to the teachers' needs are essential actions if administrators aspire to support the change process (Forner et al., 2012). Focusing on teachers' needs collectively, in campus groups, and individually are all areas for which administrators can cultivate collegial trust.

Change cannot be rushed, but must be allowed to develop and take root over time. Dotger and Mangram (2008) warn against pushing individuals to skip steps in the change process. Change is a process (Hord et al., 2008) and requires cultivation and nurturing. A tool in the CBAM not utilized for this study is ICMs. Allowing the teachers time to envision what instructional coaching might look like or what it might feel like to partner with a coach and checking progress with ICMs might have been worthy steps along several points in this district's path to implementing instructional coaching.

Finally, instructional coaching is a professional development model that requires a substantial investment of time, energy, and funding. As a means of professional development, instructional coaching is financially costly, requiring two to ten times more money than traditional professional development (D. S. Knight, 2012). The benefits of this means of professional learning must be weighed against the costs.

Recommendations for Further Research

The field of rural education research is ripe for those who desire to explore it. The complexities of rural definitions, the lack of common traits between rural schools, and the variances in context are worthy of developing. The lack of thorough, rigorous research in this area continues to exist as a gap. The education field could reap rich rewards by further study of rural education, and the topic deserves an updated comprehensive study by the U.S.D.E.

Additional studies to follow implementation in small schools of instructional coaching programs beyond the initial three years would be beneficial. Instructional coaching is becoming a common practice in suburban and urban schools, but is still unchartered waters for many rural schools. Additional research on coaching in rural schools could assist administrators in knowing how the teachers' perspectives may change, given additional time and support.

Change research continues to evolve, and while the field of educational research has a wealth of research-based findings for change, the area of teacher emotions is relatively unexplored. More work in this area during the process of change could yield much-needed information for administrators who desire to support change. Imagine school administrators as circus performers spinning plates in the air. Some plates will

fall to the ground, but with the study of change research, administrators can become more adept at keeping plates spinning.

APPENDIX A

AMERICAN INSTITUTES FOR RESEARCH LICENSE AGREEMENT TO USE THE STAGES OF CONCERN QUESTIONNAIRE

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Date: August 5, 2015

Thank you for your interest in using the **Stages of Concern Questionnaire 075** published by SEDL in 2006 in *Measuring Implementation in Schools: The Stages of Concern Questionnaire* as Appendix A, pages 79-82, written by Archie A. George, Gene E. Hall, and Suzanne M. Stiegelbauer; in the book *Taking Charge of Change*, pages 48-49, written by Shirley M. Hord, William L. Rutherford, Leslie Huling-Austin, and Gene E. Hall, in 2006, with a 2nd printing in 2008, and a revised PDF version uploaded in 2014 and available on demand from Lulu.com; and in electronic format as SEDL's *SoCQ Online* accessible at http://www.sedl.org/pubs/catalog/items/cbam21.html.

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2. In using the SoCQ 075, the Licensee may substitute the words "the innovation" with a word or phrase that participants will recognize, such as the name of the innovation or initiative, and questions can be added to identify demographic indicators or participants before or after the instrument, but otherwise, the wording and order of items cannot be changed.

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Thank you, again, for your interest in using the **Stages of Concern Questionnaire 075**. If you have questions about AIR's License Agreement, please contact me at 800-476-6861, ext. 6548 or 512-391-6548, or by e-mail at nreynolds@air.org.

Sincerely,

Nancy Reynolds — August 17, 2015

Nancy Reynolds for American Institutes for Research — Date signed

Agreed and accepted:

Signature: Melissa Mayfield — 08/13/15

Date signed

Printed Name: Melissa Mayfield

APPENDIX B

OPEN-ENDED STATEMENTS OF CONCERN

Name (Optional)

The purpose of the open-ended question on the next page to determine what people who are using or thinking about using innovations are concerned about at various times during the innovation adoption process.

Please respond in terms of your present concerns, or how you feel about your involvement or potential involvement with the innovation of instructional coaching for math. The researcher does not hold to any one definition of this innovation, so please think of it in terms of your own perceptions of what instructional coaching for math involves. Remember to respond in terms of your present concerns about your involvement or potential involvement with instructional coaching for math.

Thank you for taking time to complete this task.

Response Sheet

When you think about instructional coaching for math, what are you concerned about? (Do not say what you think others are concerned about, but only what concerns you now.) Please write in complete sentences, and please be frank.

(1)

(2)

(3)

Please place a check by the statement that concerns you most.

APPENDIX C

RECRUITMENT SCRIPT

University of North Texas Institutional Review Board
Recruitment Script
Melissa J. Mayfield, Student Investigator

As a doctoral student at the University of North Texas, I am conducting my dissertation study under the direction of Dr. Jane Huffman, Professor and Supervising Investigator. I am pursuing a degree in Educational Leadership and my research study is titled *Instructional Coaching in a Small District: A Mixed Methods Study of Teachers' Concerns.*

The purpose of my study is to identify the concerns of teachers during implementation of an instructional math coaching program in [redacted] ISD, which is classified as a rural-fringe district. I am also seeking to determine if any teachers' concerns can be attributed to the rural context of the district. I am collecting data for this study through three methods: (1) Stages of Concern Questionnaire data gathered by your district over the course of three years and reported anonymously, (2) Open-Ended Statements of Concern gathered from teachers through an anonymous online survey, and (3) Campus-level focus group interviews.

Any participation in this study is voluntary and will in no way have a negative effect on your standing or employability at [redacted] ISD. As the district's Curriculum and Instruction Director, I have established processes and procedures to ensure your anonymity and confidentiality if you choose to participate. [redacted] ISD Superintendent [redacted] has granted me permission to conduct this case study on the district's instructional coaching program.

The Stages of Concern Questionnaire was administered by [redacted] ISD in May of 2014 and May of 2015. It will be administered again in May of 2016. All participation in the survey has been, and will continue to be, voluntary under the direction of the district. You are not asked to provide any identifying information on the survey other than your campus and results are examined and reported only at the campus level. When this data is utilized in my study, pseudonyms will be utilized for the district's name as well as the campuses' names. Again, the purpose of the study is not to report specifically on [redacted] ISD, but to report on one rural-fringe district's experience with instructional coaching and how some of the concerns during implementation may be attributed to the rurality of the district.

If you choose to participate in the campus-level focus group interview, it will take about 60-90 minutes of your time one afternoon after school. A date will be established for your campus's participants to meet together with myself, Dr. [redacted] of [redacted] State University, and a transcriptionist. I will explain the study's purpose, the processes to be utilized in the group interview, and the informed consent procedures. If you choose to remain and participate, you will be asked to sign an

informed consent and I will leave to allow Dr. [redacted] to facilitate the interview in a manner in which your comments will be kept anonymous.

If you choose to participate in the online survey of Open-Ended Statements of Concern, you will be asked to read through the study's purpose, procedures, and to check a box indicating your informed consent. You will not be asked to provide any identifying information other than your campus. The survey will take about 10 to 15 minutes to complete and asks you to type three statements reflecting your concerns during the first three years of implementation of the instructional coaching program for math in [redacted] ISD. You will also be asked to indicate which of your statements reflect your highest concern.

This study is being conducted under the supervision of my dissertation committee at the University of North Texas. Dr. [redacted], Mrs. [redacted] who will act as the interview transcriptionist, and myself have all completed the National Institutes of Health Office of Extramural Research's "Protecting Human Research Participants" course. All of the study's procedures for working with human subjects have been scrutinized and approved by the UNT Institutional Review Board to ensure the lowest possible risk to participants while maintaining confidentiality.

It is my hope that you will consider full participation with the data collection methods of this study. There is a great need for educational research in smaller districts and the greater the number of participants in each study reported, the greater the benefit to other small districts.

If you have any questions about your participation in this study, please feel free to contact either myself [redacted] or my Supervising Investigator and Dissertation Chair, Dr. Jane Huffman, UNT Department of Teacher Education and Administration at telephone number (940) 565-2832.

Thank you for your consideration.

APPENDIX D

INFORMED CONSENT NOTICE FOR ONLINE SURVEY

University of North Texas Institutional Review Board

Informed Consent Notice for Online Survey

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Title of Study: Instructional Coaching in a Small District: A Mixed Methods Study of Teachers' Concerns

Supervising Investigator: Dr. Jane B. Huffman, Professor, University of North Texas (UNT) Department of Teacher Education and Administration.

Student Investigator: Melissa J. Mayfield, a graduate student in the University of North Texas (UNT) Department of Teacher Education and Administration.

Purpose of the Study: The purpose of this study is to identify the concerns of teachers during implementation of an instructional math-coaching program in a small district and to determine if any concerns can be attributed to the rural context of the district. Data will be gathered from the Open-Ended Statements of Concern for interpretation of teachers' concerns during the first three years of implementation of a district math coaching program.

Study Procedures: If you choose to participate in this study, you will complete a brief questionnaire, taking about 10 to 15 minutes of your time, requiring you to type three statements reflecting your concerns during the first three years of implementation of the instructional coaching program for math in [redacted] ISD. You will also be asked to indicate which of your statements reflect your highest concern. You will not be asked to provide any identifying information other than your home campus.

Foreseeable Risks: Your participation in this study is completely voluntary. You may refuse to participate in the survey at any time. Your decision to participate or to withdraw in this study will in no way have a negative effect on your standing or employability at [redacted] ISD. As the district's Curriculum and Instruction Director, I have established processes and procedures to ensure your anonymity and confidentiality if you choose to participate. [redacted] ISD Superintendent [redacted] has granted me permission to conduct this case study on the district's instructional coaching program for math.

The procedures outlined below will be used to ensure that the information from each subject is kept completely confidential in the research documents and all individual and school information will remain anonymous through the assignment of pseudonyms. You will not be asked to provide personally-identifiable information other than your home campus during the survey.

Procedures for Maintaining Confidentiality of Research Records:

- You will not be asked to provide any identifying information other than your home campus.
- The survey will take about 10 to 15 minutes and asks you to type three statements reflecting your concerns during the first three years of implementation of the instructional coaching program for math in [redacted] ISD.
- You will also be asked to indicate which of your statements reflect your highest concern.
- Confidentiality/anonymity of each questionnaire will be coded according to each school site. The school site will be given a pseudonym in order to maintain individual and school confidentiality.
- You may refuse to participate in the survey at any time.

This consent notice and coded questionnaire data will be kept in separate locked storage by my dissertation committee chair, Dr. Jane Huffman, at her University of North Texas office. All data recorded electronically will be coded and stored on a password protected computer which is accessed only by me. All questionnaires and electronic data will be destroyed 3 years after the completion of the study. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Benefits to the Subjects or Others: This study is not expected to be of any direct benefit to you; however, the study will (1) help the district identify concerns of teachers during the initial three-year implementation period for the instructional coaching program in order to address concerns and provide scaffolded supports by campus, (2) contribute to the field of rural education research, (3) provide information on teachers' concerns during implementation of an instructional coaching initiative, and (4) assist other rural districts who attempt implementation of such an initiative by providing important information on teacher concerns.

Questions about the Study: If you have any questions about the study, you may contact Melissa J. Mayfield at telephone number [redacted] or the faculty advisor, Dr. Jane Huffman, UNT Department of Teacher Education and Administration at telephone number (940) 565-2832.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-4643 with any questions regarding the rights of research subjects.

Research Participants' Rights: Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- Melissa J. Mayfield has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.

- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this notice.

☐ By checking this box, you consent to the terms of this research study as stated in this agreement.

APPENDIX E

INFORMED CONSENT FORM FOCUS GROUP INTERVIEW

University of North Texas Institutional Review Board

Informed Consent Form: Focus Group Interview

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Title of Study: Instructional Coaching in a Small District: A Mixed Methods Study of Teachers' Concerns

Supervising Investigator: Dr. Jane B. Huffman, Professor, University of North Texas (UNT) Department of Teacher Education and Administration.

Student Investigator: Melissa J. Mayfield, a graduate student in the University of North Texas (UNT) Department of Teacher Education and Administration.

Purpose of the Study: The purpose of this study is to identify the concerns of teachers during implementation of an instructional math-coaching program in a small district and to determine if any concerns can be attributed to the rural context of the district. Data will be gathered from this focus group interview for interpretation of teachers' concerns during the first three years of implementation of a district math coaching program in a rural district.

Study Procedures: You will be asked to participate in a face-to-face group interview that will take about 60-90 minutes of your time. Checking over the transcript after the interview has been completed and transcribed to paper may take an additional 20 minutes of your time. The interview, with your permission, will be audio recorded and transcribed to an electronic document. During the interview, you will be asked questions about your experiences in your school which are related to instructional coaching and rural characteristics of your school. The facilitator of the interview, Dr. [redacted], may ask for clarification as the interview progresses, however, his primary objective is to listen and to hear your views and perceptions about the characteristics of your school and the instructional coaching program for math. Once the interview has been transcribed to paper, the transcript will be sent to you no later than three weeks after the interview session so that you may read it and add further information or correct any misinterpretation that could result. Once the study is complete you may request a summary of the findings.

Foreseeable Risks: Your participation in this study is completely voluntary. You may refuse to answer any question and you may leave the interview at any time.
The procedures outlined below will be used to ensure that the information from each subject is kept completely confidential in the research documents and all individual and school information will remain anonymous through the assignment of pseudonyms.

Procedures for Maintaining Confidentiality of Research Records: The following procedures are designed to maintain your confidentiality in participating in this study.

- Each interview participant will pick up a numbered tent card to place at your seat before the interviews begin. Your comments will be recorded by the number on your card. Your name will not be used and analysis of comments will be conducted collectively by campus group.
- With your signed consent, an audio recording will be made of the interview to assist the transcriptionist in completing transcription duties. All transcriptions and audio-recordings will be handled by Mrs. [redacted], Transcriptionist, who has been trained in confidentiality of human subjects and approved by the University of North Texas Internal Review Board as personnel for this research study. She has completed training in the National Institutes of Health Office of Extramural Research's "Protecting Human Research Participants".
- The facilitator of this interview, Dr. [redacted], Assistant Professor at [redacted] State University in [redacted], Texas, has also completed training in the National Institutes of Health Office of Extramural Research's "Protecting Human Research Participants".
- The persons hearing the audio recordings will include Mrs. [redacted], Transcriptionist, and me. Electronic copies of the audio recordings and transcribed data will be kept on a password protected computer which has access only by me and Mrs. [redacted]. Copies of the audio recordings will be kept as confidential research records in locked storage by my dissertation chair, Dr. Jane Huffman, at her University of North Texas office.
- Informed consent forms will be kept in separate locked storage by my dissertation committee chair, Dr. Jane Huffman, at her University of North Texas office.
- The recordings, informed consent forms, and interview notes will be destroyed 3 years after the completion of the study. The confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

Benefits to the Subjects or Others: This study is not expected to be of any direct benefit to you; however, the study will (1) help the district identify concerns of teachers during the initial three-year implementation period for the instructional coaching program in order to address concerns and provide scaffolded supports by campus, (2) contribute to the field of rural education research, (3) provide information on teachers' concerns during implementation of an instructional coaching initiative, and (4) assist other rural districts who attempt implementation of such an initiative by providing important information on teacher concerns.

Questions about the Study: If you have any questions about the study, you may contact Melissa J. Mayfield at telephone number [redacted] or the faculty advisor, Dr. Jane Huffman, UNT Department of Teacher Education and Administration at telephone number (940) 565-2832.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-4643 with any questions regarding the rights of research subjects.

Research Participants' Rights: Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- Melissa J. Mayfield has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this form.
- Your decision to participate or to withdraw from the study will have not have a negative effect on your standing or employability at [redacted] ISD.

_____
Printed Name of Participant

_____ _____
Signature of Participant Date

For the Student Investigator: I certify that I have reviewed the contents of this form with the participant signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

_____ _____
Signature of Student Investigator Date

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