A CASE STUDY OF THE IMPACT OF THE MIDDLE SCHOOL DATA COACH ON TEACHER USE OF 
EDUCATIONAL TEST DATA TO CHANGE INSTRUCTION 

Rachelle Phelps Hill, B.A., M.A.

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APPROVED:

Jeanne L. Tunks, Major Professor
Ronald W. Wilhelm, Committee Member
Gloria Contreras, Committee Member
Jerry L. Wircenski, Committee Member
Nancy Nelson, Chair of the Department of Teacher Education and Administration
Jerry R. Thomas, Dean of the College of Education
James D. Meernik, Acting Dean of the Robert B. Toulouse School of Graduate Studies
With the advent of No Child Left Behind (NCLB) legislation in 2002 and its attendant increases in accountability pressure, many districts and schools currently embrace data analysis as an essential part of the instructional decision making process. In their attempts to overcome low achievement on state-mandated tests, some districts have begun employing data coaches. The study reported here, which was set in three middle schools in a northeast Texas school district, assessed the influence of the campus data coach on a middle school mathematics teachers’ use of analyzed data to make instructional decisions. It also examined the extent to which the Data Coach/teacher relationship resolved teacher concerns about data-driven decision making. Phenomenological interviews with data coaches were guided by Seidman’s (2006) three-series interview. Measurement of teacher use of data to make decisions was based on the concerns-based adoption model’s levels of use interview protocol, stages of concern questionnaire, and innovation configuration map.

By the end of one school year, two out of the three teachers never used data to make instructional decisions, although the non-users both had moved closer toward employing the innovation in their classroom. Data indicated all teachers were aware of the innovation, but all three ended the study with high personal concerns, signifying that the minimal efforts made by the data coaches to resolve concerns were not successful. This study’s small sample gave the research paradigm of data-based decision making an in-depth glimpse into the process of
implementing data-based instructional decision making and the Data Coach position on three
middle school campuses in one large northeast Texas district.
ACKNOWLEDGEMENTS

This study would not have been completed without the leadership, leniency and encouragement provided by my principal and mentor, Mrs. Becky MacDonald.
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CHAPTER 1

INTRODUCTION

Introduction to the Problem

The call for data-driven decision making in education long a part of educational discussions, finds meaning in Weber’s definition “student monitoring” (1971) and Popham’s “criterion-referenced instruction” (1973). With the advent of No Child Left Behind (NCLB) legislation in 2002 and its attendant, increased accountability pressure, districts and schools currently embrace data as an essential part of the instructional decision making process. Hence, state-mandated testing has become the primary indicator of school success. NCLB’s adequate yearly progress performance standards for math and English language arts have steadily increased each year (Texas Education Agency, 2009, p. 90). Because districts and schools want to meet these ever increasing state and federal expectations, they are seeking means by which to support instruction that results in higher achievement, as measured on standardized tests.

Paul Black and Dylan Wiliam in “Assessment and Classroom Learning” (1998) examined over 250 research studies on student improvement and found that formative assessments (periodic assessments of student progress) improve student performance (p. 61). The authors stressed that teachers in these studies use data from assessments to plan future instruction. Notably, teachers using formative assessment data to make instructional decisions produced students who ultimately performed at higher levels. In the last twelve years since this article was published, districts have embraced data and the analysis of these data, as integral parts of a teacher’s instructional planning.

In response to research such as Black and Wiliam’s, some districts have created the
innovation of the data coach position. The data coach assists teaching staff in reading, sorting, analyzing and applying test data to improve instruction, with the intent to increase student achievement. Such test data can come from both formative and summative assessments, including state test data and even classroom test data. Joellen Killion (2009) describes the data coach’s job as helping teachers to examine “student achievement data and in using these data to design instruction that addresses student learning needs” (p. 10). She warns that coaches have a difficult job in “creating a safe, blame-free environment for ruthless analysis of data” (p. 10). As an agent of change, the job of the data coach is important in the pursuit of data-driven decision making by teachers in the classroom, but training and leading teachers in the process of using data to make instructional decisions can be slow and difficult to accomplish.

Several factors directly affect the success of an innovation such as using test data to change instruction. According to Hall and Hord (2001), change facilitators must consider whether the innovation is being used and how it is being used, as well as how participants, as they process the change, feel about the innovation. In order to encourage change in an organization, facilitators must assess the current needs of the participants and adjust accordingly to encourage growth in the organization as a whole. Data coaches on campuses provide support to staff for data-driven decision making. However, simply employing a data coach at the campus level does not ensure that the needs of teachers who have never used data, or do not wish to use data at all, will be met. Although research supports the use of data in instructional decision making, simply employing a campus data coach does not mean that teachers will begin to use data to change instruction. To best meet the needs of teachers who are learning to use data to derive instructional choices, data coaches must assess teachers’
concerns and levels of use of data for making instructional decisions and coach accordingly with interventions especially designed to encourage data-based instructional decisions by teachers.

A study of campus data coaches, an innovation employed in one district in North Texas, reveals an inconsistent pattern of training and scrutiny of practice. The current use of data coaches assures that conversations occur between teachers and data coaches about data, but the quality of conversations is uncertain, and whether or not teachers do anything with the discussions after the meetings remains unknown. The lack of consistency and understanding of how teachers use the innovation of using test data to change instruction and how the data coach affects their use of the innovation, as applied to instructional decisions, led to this study.

Statement of the Problem

The inclusion of data coaches, to overcome low achievement, among secondary students, in a North Texas school district, led to an examination of the influence of data coaches as a solution. Although there is much written about educational coaching (Knight, 2008), there is minimal research on the position of a data coach, as an intervention, on a teacher’s use of data and/or data coaching advice in decision-making regarding instruction. In theory, a data coach plays a major role in assisting educators in analyzing data, especially for those who claim to be novices in the use of data in the classroom. However, the paucity of research on use and effectiveness of data coaching led to this study.

Purpose of the Study

This study assessed the influence of data doaches on middle school mathematics
teachers’ use of analyzed data to make instructional decisions. This study also assessed the relationship between the data coach and the teacher, and how this relationship resolved teacher concerns about data-driven decision making, as observed through follow-up, persistent interviews.

Research Questions

The two research questions guide the research:

1. How does the data coach influence teacher use of test data to make instructional decisions?

2. How does the data coach resolve teacher concerns about using test data to make instructional decisions?

Working Assumptions

Working assumptions to the research questions above are that data coaches do influence teacher use of test data to make instructional decisions. In addition, meetings with data coaches and other teacher/data coach interactions will help to resolve teacher concerns about the innovation of using test data to make instructional decisions.

History

With the passage of the legislation of No Child Left Behind, pressure calling for educator accountability has increased. Accountability, defined by standardized testing and graduation rates, determines funding for local districts. State-mandated testing has become the primary indicator of school success, yet many districts have seen test scores decrease over the years.
The North Texas district in this study experienced a decrease in test scores and a rise in high school dropouts, which led to significant, innovative changes implemented by district administrators. One such innovation was the campus data coach. A timeline of events leading to the creation of the data coach position is chronicled (See Table 1.1).

Table 1.1

District Timeline of Events

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2003-2004</td>
<td>0.9% dropout rate</td>
</tr>
<tr>
<td>2004-2005</td>
<td>1.2% dropout rate</td>
</tr>
<tr>
<td>2005-2006</td>
<td>3.2% dropout rate</td>
</tr>
<tr>
<td>2006-2007</td>
<td>2 Academically Acceptable Middle Schools</td>
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<tr>
<td></td>
<td>6 Recognized Middle Schools</td>
</tr>
<tr>
<td></td>
<td>6 Exemplary Middle Schools</td>
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<td></td>
<td>Texas authorizes High School Allotment</td>
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<td></td>
<td>District adapts Understanding By Design</td>
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<tr>
<td></td>
<td>3.5% dropout rate</td>
</tr>
<tr>
<td>2007-2008</td>
<td>2 Academically Acceptable Middle Schools</td>
</tr>
<tr>
<td></td>
<td>8 Recognized Middle Schools</td>
</tr>
<tr>
<td></td>
<td>4 Exemplary Middle Schools</td>
</tr>
<tr>
<td></td>
<td>Mid-year creates middle school data coaches</td>
</tr>
<tr>
<td>2008-2009</td>
<td>4 Academically Acceptable Middle Schools</td>
</tr>
<tr>
<td></td>
<td>6 Recognized Middle Schools</td>
</tr>
<tr>
<td></td>
<td>4 Exemplary Middle Schools</td>
</tr>
<tr>
<td></td>
<td>New data management software</td>
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<td>New online curriculum</td>
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<td>CBAs implemented</td>
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The last two school years before the data coach was introduced in the district (2005-2006 and 2006-2007), the middle schools’ campus rankings fluctuated while the overall district state ranking remained constant. The schools’ rankings are based on Texas’s Academic Excellence Indicator System, which ranks schools across four categories: Exemplary, Recognized, Academically Acceptable, and Academically Unacceptable. The North Texas district
in this study, in 2005-2006, produced two Academically Acceptable middle schools, with the rest of its middle schools either Recognized or Exemplary. By 2008-2009, two additional middle schools had dropped to the lower ranking of Academically Acceptable. This drop in rankings caused alarm among local district administrators. Immediate changes in the district were necessary to improve overall student performance.

In addition to lower standardized test scores, the district grappled with a rising high school dropout rate. In 2004, the graduating class in this district had a dropout rate of .9%. By 2006, the dropout rate had risen to 3.2% of the graduating class. District administrators needed an intervention that would increase student achievement and decrease the high school dropout rate.

Initially at the beginning of the 2006-2007 school year, district administrators adopted a curriculum philosophy outlined by Grant Wiggins and Jay McTighe in *Understanding by Design* (2005). The authors stress the backward design of curriculum where teachers determine the evidence of knowledge gained before putting together lesson plans. Teachers must “think like an assessor” by determining first what students need to know before creating lessons (p. 18). The design emphasizes that teachers know the assessment of the material before introducing content.

School district administrators also adopted the idea underlying Marzano’s “guaranteed and viable curriculum” (2003) in which teachers know the district’s expectations of student skill level at all grade levels, and teachers work together with administrators to maintain expectations throughout the district over a period. Curriculum supervisors embraced both philosophies by employing teachers over the summer to write out specific objectives, tied to
state student expectations, which were then introduced at specific times throughout the school year. This resulting online district-created scope and sequence, designed to guide lesson planning and ensure necessary objective coverage, provided teachers with an easily accessible curriculum. During that school year, curriculum supervisors and teacher leaders worked to narrow the curriculum, assuring complete coverage of the state-mandated standards.

Also in 2006, the Texas legislature created the High School Allotment Fund, a $320 million fund to provide districts with $275 per high school student (Grades 9-12) “to improve high school graduation and college readiness rates” (TEA website, 2010). District administrators would be able to use this money to fund programs that would decrease school dropouts and increase student achievement. The district instituted programs such as credit recovery and after-school tutorial programs to combat dropout rates; however, funds were still left over after these programs were implemented. The district had a surplus, which would allow for other initiatives, and district administrators considered other options that might raise student achievement and lower the high school dropout rate.

Prior to the 2007-2008 school year, teachers relied on school administrators or a campus testing coordinator to provide data analysis and reports. Besides organizing and administering state testing, part of the coordinator’s job was to: (a) provide teachers with state and district testing data, and (b) help teachers administer local benchmark tests (CBAs) and (c) disaggregate the data. From 2002 to 2007, test coordinators worked to provide test data to teachers, but it seemed to many administrators that although the teachers had data readily available, they were still uninterested in using the information in their daily instructional decisions. Unless campus principals organized time for data study, teachers were not given
much extra time for data analysis or discussion. As a result, administrators worried that although teachers were provided test data, they were not using them to make instructional decisions. Although they did not conduct an investigation into whether teachers were using data to make instructional decisions, the administrator assumed based on their campus experience that the availability of information and understanding of the information had limited effect on teachers’ choice to use data analyses as recommendations for changes in instructional practice.

To solve the issues of fluctuating Texas Assessment of Knowledge and Skills (TAKS) test scores and a rising high school dropout rate, district administrators turned to the solution of data-based decision making. Administrators were convinced that if teachers used data to make instructional decisions, they would increase student achievement and also increase student engagement, thus minimizing student dropouts. Based on their assumptions and experience concerning teacher use of data, district administrators determined a need for someone on campus to assist teachers in data analysis and decision-making. Their rationale was that with such information teachers would differentiate instruction and produce an increase in student achievement. The innovation the district applied to solve the dilemma of teacher non-use of data in instructional changes was the campus data coach, which would be funded by the Texas High School Allotment. These coaches would assist teachers in reading and applying data analysis to instructional practices. Data coaches were deemed to be necessary because the district would be inundated with accessible data, and administrators wanted to make sure teachers knew how to access and analyze the data, and ultimately, how to use that information to change their instruction.
During the summer of 2008, curriculum writers created curriculum based assessments (CBAs), based on recommendations by Wiggins and McTighe (2005) and Marzano (2003), who promote the use of formative assessments, which periodically assess student skill level. The district sought to guarantee its curriculum, as part of Marzano’s guaranteed and viable curriculum, with formative tests taken at designated times throughout the school year. These tests assessed whether students were accomplishing the goals set out in the district scope and sequence. Theoretically, these assessments followed the teachers’ lesson plans closely enough to assist teachers in determining if a student acquired the necessary knowledge to move on to the next unit. In addition, it was assumed that these tests mimicked the state-mandated test, the TAKS test, enough so that teachers could also gain knowledge about how their students might perform on these tests. Questions for CBAs were drawn from released TAKS tests, and district curriculum-specific test items were modeled to align with TAKS test questions. Teachers were able to use data from district CBAs to make instructional decisions, thus following the district-adopted theories of Wiggins, McTighe, and Marzano.

The district’s 2008 purchase of a new curriculum and data management software allowed its administrators to monitor curriculum development and implementation easily through one program included in the software. In addition, they could collect and analyze data on student performance on state-mandated testing and CBAs through another program. The software program made lesson plans, district scope and sequence, and test data available to all teachers online. It was designed as a user-friendly way for teachers to view all district data online, including state and local testing data. This software program not only made access to curriculum easy, it also made it easy for teacher leaders and administrators to monitor lesson
plans, changes to curriculum, and ultimately, student performance on formative and summative tests.

The district created the data coach position in its middle schools in the middle of the 2007-2008 school year to assist teachers in data based decision-making. Principals and counselors were eager to find someone to accept responsibility for testing, data analysis, and sharing reports with teachers. The district constructed its data coach job description based on the overall assessment needs of the district (see Appendix G). As indicated by the job description, the primary purpose of the position is to “facilitate the efficient use of test data to inform and improve learning for all students” through conversations with and between faculty members about data. In addition, according to the data coach job description, major responsibilities held by the data coach include working with teachers on student achievement in relation to data analysis, managing and presenting data in reader-friendly formats, and working with teachers in regard to developing tutoring or differentiated lesson plans for struggling students. With the data coach, teachers discuss testing and data provided by the state and local formative and summative assessments. The main purpose behind the creation of the data coach position was to move teachers toward using data provided to them, an innovation originally suggested by William and Black (1998) and supported by Wiggins and McTighe (2005), and Marzano (2003). However, district administrators could justify additional benefits of the data coach position. Data coaches would encourage teacher differentiation of instruction, which would in turn raise student achievement and thus decrease student dropout rates. Thus, district administrators were able to fund these positions with the Texas High School Allotment fund. In the following two years, 2007 through 2009, the district’s further
advancements in district-created assessments and technology would make data coaches even more necessary on individual campuses.

The innovation of the data coach seemed to solve many problems identified by district administrators. By assisting teachers with data analysis and their resulting implementation of data-based instructional decisions, data coaches would help foster teacher collaboration, spur differentiated instruction, and eventually, raise student achievement and lower the dropout rate. Thus, data coaches were subsidized through the Texas High School Allotment fund in the hopes that such a position could directly affect teacher decision-making in the classroom.

Rationale

The North Texas district involved in this study is one of few that employ data coaches. There is minimal research on the effectiveness or influence of the data coach on teacher use of data in general. In this district, data coaches are funded through the Texas High School Allotment, and justifications for spending government monies are necessary. This study attempts to examine the influence of three middle school data coaches on three middle school mathematics teachers’ use of test data to make instructional decisions.

Considerations of this study’s questions and working assumptions led to this study being designed as an explanatory multiple-case study as defined by Yin (1994), because it “investigates a contemporary phenomenon within its real-life context” (p. 13). Without much background on the data coach and the position’s effectiveness, an in-depth study of the data coach and teacher relationship was necessary. As stated by Yin, a case study allows “an investigation to retain the holistic and meaningful characteristics of real-life events” (p. 3).
Because campus and district administrators thought that teachers were not making data-based decisions, and they assumed data coaches were influencing teacher use of data, research on the true lived experience of the data coach and teacher in regard to teacher use of data to make instructional decisions was necessary. A case study provided the means to explore the data coach position and the teachers’ use of data based on experiences with the data coach. A multiple-case study allowed a researcher to rely on what Yin (1994) and Kvale (1996) term as “analytical generalization,” where the researcher can make generalizations for a larger population based on the similarities determined between the different cases (p. 36).

This study used five different sources of evidence to determine the overall influence of the data coach. The study was designed to assess the data coach’s influence through a series of phenomenological interviews and shorter, periodic interviews about data coach perspectives on teacher use of test data to make instructional decisions. In addition, the study assessed teachers’ use of test data to change instruction and their concerns about making data-based instructional decisions through the three assessment tools of the concerns-based adoption model outlined by Hall and Hord (2001), which is described below. The examination of all five data points gave insight into the data coaches’ interactions with and influence on the math teachers involved in the study.

Change Management Theory

Within the context of change management theory, the data coach used certain strategies such as teacher collaboration and teacher-friendly data presentations to influence teachers to use of data generated from CBAs, TAKS tests, and classroom assessments for
instructional decisions. Administrators hoped that these strategies would in effect change the way the school, and eventually the district, examined and used test data, resulting in higher test scores, and elevated school rankings by the state. These strategies would change what Boyd (1992) defines as the context of the organization. Boyd’s context is made up of both the ecology, defined by Hall and Hord (2001) as the “individual’s perceptions of a work setting,” and culture, defined by Hall and Hord as the “individually and socially constructed values, norms, and beliefs about an organization” (p. 194). Both the ecology and culture of an organization can determine when change might occur because these two terms represent an overall setting in which participants work. If the organization setting is not conducive to change, change agents will have to work harder to influence and encourage change. By finding a way to change the context of each campus, and ultimately the district, this North Texas district potentially moves closer toward more teacher data use for their instructional decisions, and ultimately in higher student performance.

For the purpose of this study, this district’s attempt to change its ecology and culture to promote teacher use of data are examined through the lens of the concerns-based adoption model (CBAM). What follows is an in depth explanation of the model, summarized afterward by how this study used the model to examine the district’s innovation of data-driven instruction as supported by data coaches. The overall premise of CBAM is that change agents should consider change participants’ concerns and intervene to help resolve those concerns in order to facilitate change. According to Hall and Hord (2001), the essential composition of the context of the organization determines the overall success of the instituted change. They also note that participants’ concerns were directly affected by the context. Both culture and ecology directly
affect participants’ concerns, and the change facilitator must consider all extrinsic and intrinsic factors in order to ensure that change happens.

CBAM, the result of more than thirty years of research on the change process in institutions from education to business, began at the University of Texas at Austin. Researchers “studied the change process in schools and universities as part of the agenda of the Research and Development Center for Teacher Education” (Hall and Hord, 2001, p. 3). The basis for the development of CBAM originated with Frances Fuller’s work (1969). Fuller, a University of Texas counseling psychologist, identified pre-service student teacher concerns about their student teaching semester and grouped their concerns into four stages. The research and development team at UT adapted these four phases for the CBAM model by defining them even further. Fuller had divided the concerns into the following categories: (1) unrelated concerns, when participants had no concerns related to the innovation, (2) self concerns, when participants were mainly concerned with how the innovation directly affected the participant, rather than how it affected others, (3) task concerns, when participants worry more about how much work they have to do to make the innovation successful, and (4) impact concerns, when the participants concern themselves with how their participation in the innovation directly affects the outside world. Hall and Hord increased Fuller’s original 4 phases resulting in 7 stages of concern: (0) awareness, which can be categorized as an unrelated concern, (1) informational and (2) personal fall into Fuller’s self concerns, (3) management is a task concern, (4) consequence, (5) collaboration, and (6) refocusing all are part of Fuller’s impact concerns. Over the years, Hall and Hord developed narrative descriptions to define each of the stages and facilitate ease of use by participants seeking to identify current stages of concern (p. 58-61).
As Fuller found in her original study, participants would ideally move through the stages from not being concerned about the innovation at all to being most concerned about how the innovation affects others. After an assessment of an individual’s stages of concern, Hall and Hord (2001) recommend adding an assessment of levels of use or implementation of the innovation as well. To get the most accurate assessment of how an innovation is being implemented, Hall and Hord suggest gathering information about the affective side of change through Stages of concern and the behavior side of change through levels of use (p. 81).

Although a participant’s Stage of Concern portrays how he/she feels about an innovation, levels of use determines how and at what level the participant uses an innovation. There are 8 levels of use (see Appendix B): 1) 3 involve no use, and 2) 5 involve some level of use of the innovation. The levels range from Level 0, when a person has no knowledge or use of the innovation to Level 7, when a person has such advanced knowledge of the innovation that he/she is able to evaluate and modify to improve the use of the innovation (p. 81-86). In order to assess an individual’s level of use, Hall and Hord (2001) recommend a level of use interview protocol, which assists change facilitators in rating teachers among the 7 levels of use. In order to make the process more accurate, the assessor must rank the level of use indicated by the participating individual’s answers in 7 categories: knowledge, acquiring information, sharing, assessing, planning, status reporting, and performing. After determining the levels of use in each of these categories, the assessor can then determine an overall level of use. By assessing the level of use of a participant, a change agent can accurately decide whether participants are actually using the innovation. By pairing both stages of concern and levels of use, a change agent gleans a much more accurate picture of the effectiveness of the innovation.
In addition to levels of use and stages of concern, the designers of CBAM encourage the use of an innovation configuration (IC) map. The IC map illustrates potential behaviors ranging from the ideal or preferred level of implementation to unacceptable behaviors related to innovation. IC maps provide both change agents and change participants with a picture of the overall purpose and design of the innovation, along with a way to identify where individuals are located on the map during implementation. In order to accomplish what Hall and Hord (2001) call “fidelity” in the implementation of an innovation (p. 39), innovation creators and change facilitators must create a “road map” of change to follow during the implementation process (p. 41). Because innovations can be adapted by individuals in many different ways, an IC map, if shared with everyone involved, gives participants a better idea of what type of implementation is expected. This map includes the various aspects of the innovation and clear descriptions of the different stages of adaptation for that innovation. When this tool is created, it is used not only to assess the implementation process, but also to provide guidance to change facilitators about teacher placement in the implementation process.

Hall and Hord (2001) suggest using the three dimensions of CBAM, Stages of Concern questionnaire, the levels of use interviews, and the IC map, to help provide change facilitators with a true assessment of where participants are in the innovation adoption process. These tools allow change facilitators not only to affect directly the context were participants attempt change as mentioned previously, but also to gain an accurate assessment of the concerns of participants. Such an assessment gives change facilitators an advantage in the change process; it allows facilitators to intervene intentionally so that a teacher will resolve concerns and progress to a more proficient level of use and ultimately implement the innovation successfully.
Managing the Data Coach Innovation

In *Implementing Change* (2001), Hall and Hord discuss the importance of context for change in schools. The authors list principles for change that correspond to the district’s initial decision and rationale for creating the data coach position. The district planned for change to be a slow process, much like the 3-5 year process recommended by Hall and Hord. Providing sufficient time would permit individuals to buy in to the value of data and subsequent analysis, as critical to instructional decisions (p. 5). Over an extended period, coaches would meet intermittently with teachers in groups and individually about test data. Not only would coaches schedule and lead their own meetings, but ideally, they would also assist teachers in their own data analysis. Coaches would serve as liaisons between administrators and teachers, assisting both groups to meet data and instructional needs. Ultimately, the innovation of the data coach could potentially influence the context of each campus, because of the ability of the coach to provide necessary interventions to promote the intentional use of test data for instructional change by teachers.

Although data on the effectiveness of the position are definitely desired by the district, currently no efforts to assess the influence of data coaches on teachers’ use of data for instructional changes have been initiated. Educational research, in general, provides limited insight on what a successful data coach does in order to be a change agent in a school. Jim Knight (2008) mentions that in the National Staff Development Council’s 1997 conference program, coaching was mentioned 19 times. The 2007 conference program mentioned coaching 193 times indicating that only in the last ten years has coaching become a part of the
education lexicon (p. 1). Therefore, in-depth research concerning the innovation of the data
coach was warranted.

Significance of the Study

NCLB’s mandates have made high-stakes testing a driving force behind curriculum
reform in the public school realm. Districts are searching for innovations that appear
guaranteed to increase student achievement. During this time of national economic turmoil,
funding for ineffective innovations is considered wasteful. In addition, current literature
supports data conversations between teachers and data coaches as a solution to improve
student achievement, but there are limited empirical studies that support these assertions.
Currently no studies have examined the influence of the data coach on teachers’ use of data for
decision-making. This study’s findings will provide insight into the work of three data coaches,
along with teacher perspectives concerning their experiences with a data coaches, and
teachers’ use of test data to make instructional decisions. With only three teachers and three
data coaches involved in this study, true in-depth analysis of the effectiveness of the position of
the data coach is possible. Conclusions based on this study could influence districts to examine
decisions regarding the use of data coaches on their campuses.

Limitations and De-Limitations

Limitations of this study included possible researcher bias and influence due to my
position as a high school data coach in the North Texas school district involved in this study
(Appendix H). In an effort to combat bias and influence, I worked to create what Yin (1994) calls
“operational measures” of data coach and teacher actions. Focused interviews were based on a set of questions (see Appendix D). Phenomenological data coach interviews were guided by Seidman’s (2006) three-series interview. Measured teacher use of data to make decisions was based on CBAM’s three measurement tools. Observations were not used in this study because the teacher would have to tell the researcher when the re-teaching of strong material would occur, thus manipulating whether a teacher would actually be engaging in making data-based decisions in the classroom.

In addition, the small sample of data coaches and teachers participating in this study could limit generalizations made concerning the data coach and teacher use of test data to make instructional decisions. However, Yin (1994) writes that analytical generalizations can be used to support a “broader theory” (p. 36). In this study, the similarities between the three cases are used to support the idea that teachers do not use data to make instructional decisions unless a data coach intervenes to promote such use. Because the operational measures are clearly defined, the study can be replicated, and therefore, the same conclusions can be drawn.

However, these limitations can also be considered de-limitations. My background knowledge gained as a high school data coach helped clarify questions and answers from teachers and data coaches. Because of my involvement in the data coach cadre, I had already created a professional bond with the data coaches involved in the study, which allowed for a more personal interaction between researcher and data coach. In addition, the small sample of coaches and teachers allowed for an in-depth examination of data coach experiences and teacher use of data. Because of the small sample, I had the time and resources to gather more data, which provided clear data coach and teacher perspectives.
Summary

This study sought to examine the use of the innovation of data coaching within the context of the innovation of using data for instructional decision making, through persistent interviewing, to better understand how and why teachers use analyzed data for instructional decisions. Chapter 2 provides supporting literature, chapter 3 details the method used for studying this phenomenon, Chapter 4 outlines the data analysis, and Chapter 5 describes conclusions discovered through the data acquired in this study.

Glossary of Terms

CBA- curriculum-based assessment; a periodic assessment created by district curriculum specialists or curriculum committees designed to assess student skills gained during designated units in the district curriculum.

Context- This study refers to context as defined by Hall and Hord (2001) as the combination of the ecology and culture of an organization.

Culture- This study refers to culture as defined by Hall and Hord (2001) as the “values, norms, and beliefs about an organization” (p. 194).

Data coach- An individual on a campus who facilitates teacher conversations to promote teacher use of data to make instructional decisions for the improvement of student achievement.

Ecology- This study refers to ecology as defined by Hall and Hord (2001) as the work setting, including but not limited to building policies, procedures, schedules, and so forth.
Formative assessment- Periodic assessments designed to assess student learning at certain points throughout a unit of instruction in order to inform the teacher what material must be retaught to address student weaknesses.

Innovation- Any new change to an individual, regardless of the actual time period the change has existed. For example, in this study, both data-based decision making and the data coach are defined as innovations. Although data-based decision making has existed for years, many teachers are new to the process, and so for those teachers is constitutes an innovation. Likewise data coaches are new to the district and teachers as well, and so represent an innovation.

Item analysis report- A report used by all three data coaches in this study. It lists the individual question and the answer choice breakdown for each question. A sample is below:

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Re-teaching- An educational technique defined as “high–quality corrective instruction designed to remedy whatever learning problems the assessments identified” (Guskey, 2010, p. 55).

RtI- Response to intervention, a process for identifying weak students and implementing interventions to help the student succeed.

Student Expectation Report- A report used by all three data coaches involved in this study. The report summarizes student performance on Texas Student Expectations as defined by the Texas Essential Knowledge and Skills. A sample is below:
Summative assessment- An assessment given to learners at the end of a unit of instruction to determine what the student learned.

TAKS-Texas Assessment of Knowledge and Skills, a standardized assessment designed to assess student skill levels across the state.

TAKS-Alt- An alternative to the TAKS test, designed for students with significant cognitive disabilities.

TAKS-M- An alternative to the TAKS test, designed for students who are receiving special education services and who are not taking classes on grade level.

TEKS- Texas Essential Knowledge and Skills, mandated curriculum standards set by the state of Texas

TELPAS- Texas English Language Proficiency Assessment System, an assessment designed to gauge the progress of the English Language Learner.

Test data or educational test data- Data examined by teachers/data coaches in this study included CBA, TAKS, and teacher-designed test results, typically organized by individual item analysis and compared with other teacher, district or state results if available.
CHAPTER 2

REVIEW OF THE LITERATURE

Data-Based Decision Making

The literature on data-driven decision making provides a glimpse into the history of curriculum when certain demands of the current culture require evidence of higher performance from teachers and students in education. The passage of government legislation directly affected educators’ need for innovation within the classroom in order to improve student achievement, and many in the past refer to using data to make decisions as a solution that works. Yet, there is little experimental research in education which supports data-driven decision making. Instead, most studies describe successful schools that used data usually in combination with other strategies to assist in higher student achievement. Ironically, there is minimal concrete evidence to demonstrate that using evidence for institutional and instructional change works. On data-driven decision making, Marsh, Pane, and Hamilton (2006) agree, “Although a few studies have tried to link it to changes in school culture or performance, most of the literature focuses on implementation. In addition, previous work describes case studies of schools, advocates for data-driven decision making, or discusses technical assistance” (p. 2). Jeffrey Choppin (2002) notes, “The anecdotal evidence provides a number of examples of small-scale successes in solving particular school problems and in raising test scores” (“Brief Review,” para. 2). The paucity of empirical research on data-based decision making in schools supports the need for additional research on the topic.

Researchers pinpoint the beginning of the push for data-driven decision making with the passage of the No Child Left Behind (NCLB) legislation in 2002 (Popham, 2004; Wayman, 2005).
This act directly tied state performance on set government educational accountability standards with federal funding, and ultimately made education a system of accountability, based on test scores. (U.S. Department of Education, 2001). In 1965, the Elementary and Secondary Education Act (ESEA) allocated funds to low performing schools, primarily serving low socio-economic children. NCLB, a re-authorization of the ESEA, followed suit and tied funding to student success on mandated state examinations in mathematics and reading. By withholding federal money from schools that did not cooperate with the stipulations outlined by NCLB, the national government effectively raised the stakes of accountability for states and districts across the nation. Not only must states require standardized testing across grade levels from Grades 3 through 11, they must also use the data from those tests to evaluate the quality of schools (U.S. Department of Education, 2001, p. 13-18). Districts and schools receive annual report cards based on their overall performance on state tests, and educators, therefore, feel pressured to perform at a high standard so that their district or school will not receive a poor report card. Prior to 2000, there were several instances where data-driven instruction was recommended as a tool to move students toward better performance.

Although data-based decision making has recently become a popular term, the underlying idea of an objective approach to student performance can be traced to the early 1900s. Ralph W. Tyler based his own curriculum theory on George S. Counts’ 1927 application of the scientific method to curriculum design. The resulting Tyler’s rationale, written in 1949, first introduced the idea of setting standard objectives and evaluating student performance based on these objectives. Although his theory would later come upon criticism, “the simplicity and functionality of the Tyler Rationale were compelling for educators” (Pinar, 2002, p. 149).
Although the field of curriculum experienced what Pinar (2002) terms as a “reconceptualization” in response to Tyler’s over-simplification of the educational process, there still were curriculum specialists who advised educators to measure student progress, examine the evidence from these measurements, and remediate students according to their identified weaknesses. Although over the years the concept terminology differed, these specialists were encouraging teachers to participate in data-based decision making.

At first, the idea of data-driven decision making was referred to as student monitoring. Researchers recognized that teachers must monitor student progress in order to determine instructional success. After a review of 17 inner-city high performing elementary schools, Weber (1971) found in 8 strategies for success that all highly-effective schools had in common. One of Weber’s strategies was teacher evaluation of student progress through tests or other means of assessment (p. 28). Like Weber, Edmonds (1979) compared studies on high-performing and low-performing schools and concluded that there are several factors to high-performing schools, including the frequent monitoring of student progress. Edmonds argued, “The point is that some means must exist in the school by which the principal and the teachers remain constantly aware of pupil progress in relationship to instructional objectives” (p. 22). Lortie (1975) agreed stating, “The monitoring of student progress stands at the heart of effective instruction” (p. 141). His conclusion is based on his 1963 study where more than 65% of the teachers involved indicated they used tests as a major form of assessment of progress for students.

Although Weber, Edmonds, and Lortie all refer to using data in the classroom as student monitoring, the assumption exists that student monitoring includes the practice of
basing classroom decisions on resulting assessment data. Although there is no mention of using the data to drive instruction, the authors assume that student monitoring directly affects the classroom instruction based on what conclusions the teacher draws from the assessment results.

Around the same time that Weber was evaluating the success of high-performing schools, W. James Popham (1973) was stressing his theory of criterion-referenced instruction (p. 11). Popham defines criterion as the “intended behavior of the learner” and notes that in order to properly design a curriculum, teachers must define the “intended behavioral changes at the outset of instruction” (p. 11). Popham’s writing mimics the ideas behind behaviorism, which over time influenced educators to use objective ways of measuring student progress. Originating with Edward L. Thorndike’s idea that education was simply “human engineering” based mostly on stimulus-response behaviors, behaviorism provided teachers with an objective means of garnering specific desired behavior from students (Pinar, Reynolds, Slattery, & Taubman, 2002, p. 91). Popham (1975) notes that B.F. Skinner’s “laboratory-derived principles for teaching children” made the behaviorist trend popular among educators, but a key principle in Skinner’s theory was the “tryout and revision of instructional materials until they were demonstrably effective” by assessing the success of students meeting pre-determined learning objectives (p. 54). Popham (1973) writes that teachers should clarify these objectives, and then pre-assess students to determine where they are in relation to the behavioral objectives. Based on the pre-assessment, these objectives should be modified to fit the students’ needs, and only then can the teacher design lesson plans. After delivering the instruction, the teacher should evaluate the learners’ performance of the objectives to “give the teacher an opportunity to
carefully reconsider his instructional performance on the basis of empirical evidence, so that, if necessary, modifications can be made in his curricular and instructional decisions” (p. 12).

Popham’s criterion-referenced instruction process illustrates the beginnings of the movement toward using data in classroom decisions, because of its description of using empirical evidence to determine teacher success.

In 1976, Victor Baldwin, a researcher in the field of special education, wrote of using data to individualize instruction for special education students. True to the behaviorist theory, Baldwin postulates that educators must create a usable data system to determine student progress through a presentation of various stimuli and analysis of student responses. By systematically tracking student progress through a data sheet, teachers can easily move students to the next step in the instructional sequence successfully (1976, p. 7). Although the data Baldwin discusses are not number based, but behavior based, his article exhibits a shift in the literature as researchers began examining more objective ways to view and assess student progress.

Owen White and Norris Haring began a trend of tracking student progress through data points when they published their book, *Exceptional Teaching* (1980). Their theory of using handicapped student behavior data as an indicator of student readiness to move to a higher level of performance is based on the stimulus and response behavioral objective movement mentioned above. White and Haring’s recommended decision process requires statistical prowess and hours of assessment for each student making it almost impossible to accomplish currently. The premise behind the theory is that teachers must use data to make decisions in
the special education classroom, which could theoretically be transferred to the regular education classroom.

Evans, Evans, and Mercer (1986) advise that behavioral objectives should be determined and assessed based on stimulus and response of students. They suggest that assessment results function in two ways: to inform the teacher what to teach and to tell the teacher how to teach (p. 29). The authors suggest a three-step model for analyzing assessment results where teachers would determine the behavior to be assessed, administer the assessment and then set future behavioral objectives based on student performance (p. 30). The researchers’ system of assessment defines data-based decision making. However, the recommended model is steeped in statistical processes and scientific details, which render it almost useless to educators due to the time involved in implementing the model. Yet, the authors state clearly what is no longer an assumption about assessment: “If students are experiencing educational problems, data must be collected on a continuous basis. This allows for changes in student performance to be immediately noticed and instructional programs to be altered to ensure student progress” (p. 57).

Other researchers (Gable, Arllen, Evans, & Whinnery, 1997; White and Haring, 1980) recommend that teachers use data points to determine when instructional intervention is needed. In order for teachers to address the learning needs of the diverse educational population of each classroom, they must use data to monitor student progress and adjust instructional approaches, which implies teachers must be diligent in assessing and recording data. Teachers should not only use data to make decisions, but should do so in a collaborative environment, where ideas can be shared and evaluated.
Test data are valuable tools for teachers according to proponents of the movement toward standardized assessments in school. In 1985, W. James Popham, Keith Cruse, Stuart Rankin, Paul Sandifer and Paul Williams wrote of the advantages to what they term measurement-driven instruction, where competency-based tests were “perceived as a catalyst to improve instruction” (p. 628). Competency tests originated as a way for educators to provide evidence to a disgruntled public of the basic skills students were learning in American classrooms. As advocates of competency tests, Popham et al. trace the success stories of competency testing in Texas, Detroit, South Carolina and Maryland, where each area reports higher student achievement after implementing an assessment program. Popham et al. contend that based on these four cases of success, “a carefully conceived measurement-driven strategy can yield improvements in students’ basic skills” (p. 634).

Two years later, W. James Popham (1987) writes that measurement-driven instruction “occurs when a high-stakes test of educational achievement, because of the important contingencies associated with the students’ performance, influences the instructional program that prepares students for the test” (p. 680). Popham notes though that the test must not only be criterion-referenced, with clear descriptions of what is being tested, but also must set a small number of high standards, while being “constructed in such a way that they actually encourage teachers to design effective instructional sequences” (p. 680). The assumption behind measurement-driven instruction is that the data from these competency tests will be examined and used by teachers to drive instruction. Ironically, this assumption is not clarified within these two articles; the authors simply write of how high stakes testing will compel teachers to change the way they approach their curriculum and their classroom. This
assumption is inherent in other discussions of successful innovations such as curriculum-based measurement.

Another innovation that originated in the eighties was a movement for formative assessment called curriculum-based measurement (CBM) (Fuchs, Fuchs, & Hamlett, 1989). Lynn and Doug Fuchs and others focused their efforts on creating a system of tests based solely on a given curriculum and creating a companion software program that not only provided the data from the tests, but also provided instructional solutions to solve the student problems identified by the assessments. In 1989, Fuchs, Fuchs, and Hamlett published a study on CBMs with two groups of teachers and students. One group of teachers used assessment data from CBMs to adjust instruction for students; the other group administered CBMs but did not use the data in instructional planning. Teachers who administered CBMs and used the data to adjust instruction had students who performed higher on the Stanford Achievement Test. The authors note that due to the time and work involved with a CBM program, teacher training and support with using CBM data in instructional planning is necessary to produce higher student achievement.

Fuchs, Fuchs, Hamlett, Phillips, and Bentz (1994) tested the usefulness of the CBM software program in a different setting. To determine whether teachers used data to change instruction, one group of teachers received results from weekly CBMs with instructional recommendations, the second received results with no recommendations, and a third contrast group did not receive any modifications to their current schedule. Findings indicated that teachers who used data to adjust instruction had higher student achievement, but they must
receive some sort of support in the area of integrating assessment data into instructional planning ("Discussion," para. 1-5).

Business models for quality control and performance became infused into educational research during the 1980s and 1990s (Choppin, 2002; Marsh, Pane, and Hamilton, 2006). Deming’s (1982) theory of total quality management (TQM) sparked educational conversations on treating schools as businesses, where students were thought of as workers who turned out required products and were in the end trained for the modern workplace (Kohn, 1993). His 14 points for management, originally sculpted for the Japanese in the 1950s, were applied to many organizations, including education. With recommendations such as constant improvement using feedback and data, training on the job, and collaboration between departments, Deming continued to shape the theory of objectivity in education.

Though Alfie Kohn (1993) warned that the extreme usage of TQM principles in education would lead to strong dependence on standardized test scores and testing in general, others found that those who implemented Deming’s principles were successful. Through case studies of several schools that, for the most part, unknowingly applied the basic premises of Deming, Schmoker and Wilson (1993) illustrate that these schools were enjoying higher student achievement because of using Deming’s principles. The authors note that many of the successful schools not only followed rules of democracy where teachers collaborated and made collective decisions about curriculum and policies, but they also applied what Deming calls “constant feedback,” where teachers constantly assess students’ current academic status and use that knowledge as direction for further development (para. 14).
In addition, after visiting a Toyota plant in Kentucky which demonstrated improvement by adopting Deming’s TQM principles, Mike Schmoker and Richard Wilson (1995) found that the main idea behind Deming’s theory was “key processes must be monitored: if you can measure the impact of a process, or some aspect of it, you can improve it” (p. 62). Schmoker and Wilson advise that schools adopt this principle by utilizing local, short term data instead of just end-of-year tests to make decisions about student needs, which closely resembles the main ideas behind data-based decision making in the classroom. Deming’s total quality management affected the data-driven decision making movement by helping educators to see that student performance, or any organization member’s performance for that matter, could be assessed and remediated in order to get the organization performing at its highest level.

In the early nineties, the realm of education became more specific in its call for teachers to include data in their instructional decisions. In 1991, a committee consisting of members from three educator associations (American Federation of Teachers, National Council on Measurement in Education & National Education Association) proposed student assessment standards by which the education community could judge its pre-service and practicing teachers. Besides recommending pre-service teacher training in developing appropriate assessments based on curriculum and student needs, the committee also recommended, “Teachers should be skilled in using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement” (p. 32). The committee stated that teachers must use the information garnered from assessments to inform their decisions at the classroom, school, district, and national level.

Through surveys, interviews, and California Assessment Program test data analysis,
Chrispeels (1992) concluded that the more effective schools used test data to modify instruction for the school or individual teacher (p. 130). Her study provided much needed evidence that using data to make classroom instructional decisions actually works. In contrast, Brooks and Brooks (1993) simply refer to teacher experience as a call to action toward data-based decision making. Brooks and Brooks write, “Schools are research institutions. Schools have access to important data on student development all day long. We need to start systematically collecting, analyzing, and using these data to inform classroom practices,” (p. 125), but they do not provide concrete evidence to support their statement.

Mike Schmoker (1996) agreed with the idea of data-based decision making in his book on continuous improvement. He writes that monitoring programs or student performance through the tracking of data is the only true way of evaluating a system to gauge progress (p. 31). Furthermore, once teachers embrace the use of data, they are able to find evidence of improvement for their students, which helps diminish what Schmoker calls “teacher uncertainty” (p. 38). By examining data that demonstrate whether a strategy is effective, teachers are able to determine what works and what does not, thus eliminating the teachers’ questioning of their effect on their students’ performance.

Ruth Johnson (1996) studied educational gaps between ethnicities and socio-economic status and states in her book, Setting Our Sights, that considering data in educational decisions can only institute positive changes. Johnson claims that data allow teachers to expose underlying assumptions and ideologies that may drive instruction, ultimately initiating change within a school or district. Johnson also notes that continuous data analysis can monitor the fidelity and implementation of that change during the time it is supposed to occur (p. 22-24).
She does not cite any specific studies that support the use of data in instructional decisions.

Victoria Bernhardt (1998) supports data in school reform efforts: “Schools that analyze and utilize information about their school communities make better decisions about not only what to change, but how to institutionalize systemic change” (p. 1). Like Johnson, Bernhardt’s book lays out detailed steps toward utilizing data to identify problems, which she claims is a catalyst for change in schools. It is a comprehensive source on how to analyze data to solve problems, but like Johnson’s book, with the exception of three short anecdotes about schools that use data successfully, it also does not show research evidence that data analysis works. Chrispeels (1992) was the only researcher mentioned who provided experimental data proving that data-based decision making can affect student achievement. Instead, most of the authors mainly rely on educator experience as a basis for pushing teachers to examine data.

As mentioned in Chapter 1, Black and Wiliam (1998a) reviewed more than 250 articles to determine evidence of the success of formative assessments. Their article provides much needed data to support data-based decision making. After Black and Wiliam read the articles’ abstracts (or created abstracts for articles that had none), the researchers labeled the articles by focus and then categorized them into seven main sections. As a result, they were able to draw conclusions about formative assessment including how formative assessment increases student learning: “Although there is no guarantee that it will do so irrespective of the context and the particular approach adopted, we have not come across any report of negative effects following on an enhancement of formative practice” (“Examples in Evidence”, third to last para.). However, Black and Wiliam are careful to point out that the feedback or data from formative assessments is only successful “when comparison of actual and reference levels
yields information which is then used to alter the gap” (1998a, Prospects section, para. 5). Like Weber, Edmonds and Lortie’s assumption that student monitoring included using the data for instructional change, Black and Wiliam’s definition of formative assessment included the same assumption. Teachers must use the data from formative assessments to adjust instruction in order for learning gains to occur. (p. 141).

John Hattie (2009) agrees that formative assessment is one of many avenues that leads to higher student achievement in his meta-analyses of more than 800 articles relating to achievement. He notes, “When teachers were required to use data and evidence based models, effect sizes were higher than when data were evaluated by teacher judgment” (p. 181). But Hattie is quick to clarify that formative assessment must be used by teachers to “ascertain ‘How am I going?’ in achieving the learning intentions they have set for their students, such that they can then decide ‘Where to next?’ for the students” (p. 181).

McTighe and Ferrara (1998) emphasized using the terminology of assessment for learning instead of assessment of learning. Essentially assessment for learning is equated with formative assessments; included in the definition of formative assessment is the understood notion that data provided from the assessment result in instructional change. McTighe and Ferrara clarify their definition of assessment for learning by noting that one of their three most important principles of effective assessment is using assessments to provide feedback for teachers and students on student learning. Periodically administering formative assessments before and during a unit provides teachers with updates on how students are learning and provides direction on how to adapt the instruction to the needs of the student (p. 6).
Richard Stiggins (2002) differentiates between assessment for learning and assessment of learning by noting that assessment for learning is not only formative assessments, but is also a way to engage students in the process of their own learning. Stiggins points out that assessment for learning involves students in self-assessment as well as participating in teacher-made assessments of taught material. Stiggins supports using data from formative assessments to drive instruction. In his article on teachers using formative assessments in the classroom, he lists several ways that the assessment data should be used. Besides utilizing assessments to provide student feedback and motivation throughout a unit, assessment data should be used to modify or develop curriculum (p. 761).

The Washington state Office of Superintendent of Public Instruction (OSPI) (2007) narrowed the field of best practices to nine basic strategies of effective schools, carefully noting that only a combination of strategies would work, and that using data is inherent in a majority of the successful strategies: “Although data is not a separate characteristic, it is implicit within several aspects of improvement processes, particularly for determining a focus or setting goals, monitoring learning to adjust instruction, monitoring the improvement plan, and, of course, for accountability purposes” (p. 6). Just as many of the researchers mentioned previously, OSPI notes that data are a major part of the school improvement processes.

Edie Holcomb (2004) in her book, Getting Excited About Data, actually references the same OSPI report which identified 4 overall characteristics of high-performing schools: (1) a caring and collaborative professional environment, (2) strong leadership, (3) focused, intentional instruction, and (4) the use of assessment data to drive instruction (p. 22). Holcomb sets her book’s focus on these four, noting that all need to be present in order for change to
happen. Just as OSPI reported in its study, Holcomb notes that using data to drive instruction alone will not heighten student performance; a combination of successful strategies must be used.

The American Association of School Administrators (2002) also addressed using data to guide school improvement in a report to superintendents, but they reviewed only literature about the practice of data-based decision-making instead of providing concrete research evidence of school or teacher success. The AASA includes various short case studies about how principals have used data in schools, but the association does not prove that the practice works. AASA recommends that superintendents point teachers in the direction of data-driven decision making so that any changes made will have a specific purpose behind them.

An Alternative Perspective

In the mid-1970s, W. James Popham began a company called the Instructional Objectives Exchange, which was a business geared toward creating high-stakes tests. Popham realized that high-stakes testing had the ability to “help teachers to design on-target, more effective lessons” if the tests were created with that focus (Popham, 2001, p. 7). As he sat in on several state test committee meetings, he realized that educators were creating these tests based on minimum standards because they realized that high-stakes tests were directly tied to diplomas. He also noticed that it did not take long for the public and the press to draw conclusions that schools with more high-stakes test failures were not as successful as schools with fewer failures. The public and press identified high-stakes testing as an indicator of student and district success. As a result, educators were pressured to raise student achievement on
tests that may or may not have measured what Popham termed “truly worthwhile skills and knowledge” (p. 15). By 2001, Popham’s opinions of the value of competency tests had changed. Because of the current dependence on competency test scores as the only measurement of student achievement, Popham believes that high-stakes testing, as it is used currently, is ineffective.

Popham (2001) illustrates why high-stakes testing has its disadvantages. High-stakes testing places teachers in a numbers game where they worry more about a student’s scores than about a student’s learned skills. In addition, deeming high-stakes test scores as an indicator of school success is inaccurate. Popham writes,

...a meaningful amount of what’s measured by today’s high-stakes tests is directly attributable not to what students learn in school, but to what they bring to school in the form of their families’ socioeconomic status or the academic aptitudes they happened to inherit. (p. 18)

In addition, Popham writes that teachers do not want to focus on curriculum that is not tested, resulting in “a nationwide diminishment of curricular attention toward any subject that isn’t included on a high-stakes test” (p. 19). And finally, Popham warns of the negatives of teaching to the test, where educators focus on test preparation and drill, ultimately eliminating students’ love of learning.

With over thirty years of experience with high-stakes testing, Popham (2001) still values properly created high-stakes tests and classroom assessments when they are used to enhance instruction. Popham (2001) describes himself as a “recovering test-developer” who made his “share of misery-inducing mistakes while trying to create large-scale assessments that might help teachers teach better” (p. 76). He writes that if tests are created with learning outcomes that provide evidence of learned “powerful cognitive skills,” then the data provided from these
tests are worthy of consideration by the public, press, and educators. However, to Popham, the high-stakes testing realm as it is now is unacceptable.

Collaboration

Around the same time as AASA’s recommendations, the discussion about data analysis moved toward pairing collaboration and data-based decision making. However, only a few researchers make the connection between the two. Cochran-Smith and Lytle (1999) suggest communities of inquiry as a way for teachers not only to ask questions about their own practice and student performance, but also for teachers to learn from many different perspectives, including an objective perspective through data and a more subjective perspective such as other teacher viewpoints. The authors note an important observation about collaboration and data: “Learning to use data for collaborative decision-making is thus both a cause and consequence of changing school culture” (p. 286). However, Cochran-Smith and Lytle’s article was mostly centered on collaboration, not necessarily the pairing of collaboration and data. In the end, most studies simply involve the advantages of using collaboration to institute change. McLaughlin and Talbert (2001) discussed the successes of collaboration and teacher communities when they visited classrooms in sixteen schools and found that most teachers, although they encounter a diverse set of students, “continue to teach as they have always taught, changing little in how they relate to their students or organize their subject instruction” (p. 19). In the end, where teachers were autonomous and non-collaborative, teachers reverted to how they were taught, and decision making was based on intuition instead of data. McLaughlin and Talbert advise that collaboration is an avenue to
get teachers to move out of traditional practices toward trying new strategies: “In such communities, teachers together address the challenges of their student body and explore ways of improving practice to advance learning” (p. 63). As long as the communities have set norms of continuous learning, teachers can use others’ experiences to determine new ways of approaching student learning.

Wellman and Lipton’s (2003) *Data-Driven Dialogue* refers to the successful effects of collaboration in schools, but provides no empirical evidence that pairing of collaboration and data analysis is absolutely necessary. Like Ruth Johnson and Edie Holcomb, Wellman and Lipton (2003) insist that in order for teachers to understand data best, they must explore the meanings behind the data in group settings: “Data, in a variety of forms, calibrates [sic] our individual perspectives with a potential shared reality” (p. ix). Wellman and Lipton’s claim that collaboration and data must be paired is not substantiated with research. Instead, they refer to current educational conversations about the benefits of collaboration and reason that data would be better understood if teachers approached data as a group. Wellman and Lipton recommend using their dialogue format called “collaborative learning cycle” as a basis for data conversations so that teachers’ inquiry process possesses the necessary structure to produce change within an organization.

Schmoker (2004) writes that collaboration between teachers has been demonstrated to institute change in instruction: “There is broad, even remarkable, concurrence among members of the research community on the effects of carefully structured learning teams on the improvement of instruction. Add to this that such structures are probably the most practical, affordable, and professionally dignifying route to better instruction in our schools” (“The case
for learning communities section,” para. 3). He notes that even with all the research and schools demonstrating the benefits of collaboration, most schools still do not have “established regular times for teachers to create, test, and refine their lessons and strategies together” (“The case for learning communities,” 3rd to last para.). Schmoker maintains that only through such true collaboration can change within a school happen.

In a change of pace, Richard Murnane, Nancy Sharkey and Kathryn Boudett (2005) studied the effects of combining both collaboration and data-based decision-making. The authors led a workshop, comprised of fourteen 2.5 hour sessions, for 10 Boston public schools to train teachers on how to analyze and use test data in school improvement. The authors encouraged teachers to use campus data for change through collaboration. Their aim was to get teachers to use data “conceptually,” which is the use of formative and summative assessment data to drive instruction. To help participants learn to analyze data, the two instructional goals of the workshop were to examine six case studies and create and answer one essential question geared to the participants’ current learning community. Murnane et al. used participant writings from the workshop, notes from conversations after the workshop about its effectiveness, and results from an online survey to determine the success of the workshop curriculum. The authors found that groups were uncomfortable in conversations unless there was a pre-determined format for conversations. In order to get everyone in groups to participate, the workshop leaders instituted a type of structured conversation where everyone had a voice and could participate in decisions (p. 275). Comments from teachers at the end of the workshop indicated that the structured conversations plus specific lessons
helped participants understand how to utilize data to help answer specific questions about their school community.

Boudett and Murnane (2006) worked with Elizabeth City, a Boston school Leadership Institute teacher, to create a specific process for data-based decision-making. All three, along with the Harvard Graduate School of Education and leaders from three Boston public schools, created what they term as the “data wise” process, which is an 8-step structured process schools can follow in order to facilitate data-based decision-making by teachers. The first step the authors recommend is teacher collaboration, followed by a cycle of introducing, then examining the data, creating an action step based on instructional change, and then assessing the implemented change. This “data wise” process is very similar to Wellman and Lipton’s (2003) collaborative learning cycle, and both support collaboration as a main factor in whether or not the process or cycle is successful.

Steele and Boudett (2008) maintain that collaboration and making data-based decisions must be linked for data analysis to be successful. By pairing collaboration and data use, teachers not only grow and learn as an organization by gaining a sense of “shared responsibility” to meet student needs, but they also feel better about “taking risks and improving their craft” (p. 56). In a study of 8 schools that worked on school improvement, all 8 focused on using data collaboratively. The authors note, “The collaborative approach to data use yielded at least three major benefits for these schools: organizational learning, improved internal accountability, and a safety net for professional growth” (p. 56). Besides encouraging teachers to become continuous learners, collaboration also creates a sense of “shared responsibility” between teachers to adapt to student needs. By collaborating, teachers feel
comfortable taking risks and trying new things, ultimately growing in the process.

Ronka, Lachat, Slaughter, & Meltzer (2008) warn that collaboration between teachers concerning data can be overwhelming, even ineffective, at times. Without structure in conversations, teachers can move off topic. The authors found that an essential-questions approach helps provide teachers with an outline to follow in conversations to enhance overall effectiveness in data analysis. They recommend that teachers ask specific questions about student performance and then search data for answers. Such questioning leads teachers into a cycle of inquiry.

The Data Coach

Providing a basic antecedent to the data coach is peer coaching and effective schools. Peer coaching provides a basis for the position of the data coach because of its premise of teachers coaching teachers and teacher empowerment. The peer coach is inherently a change agent within the school, much like the data coach, who empowers teachers through involving them in the planning and execution of curriculum. However, according to Knight (2009), peer coaching consists of “modeling, practice, and feedback” (p. 197), and the data coach, as defined by Killion (Knight, 2009), instead “assists individual teachers or teams of teachers in examining student achievement data and in using these data to design instruction that addresses student learning needs” (p. 10). For the data coach, the focus is less on being an instructional specialist, and more on facilitating conversations about data.

The effective schools movement also promoted teacher empowerment through school leaders who create a culture of teacher autonomy and instructional leadership. The data coach
helps to create such a culture through meetings with teachers where teachers decide action steps to take based on data analysis. Therefore, teacher autonomy is maintained while change is promoted within the school. The effective schools movement stressed the importance of teachers determining their own professional development and instructional decisions. The position of the data coach ensures that teachers analyze data with the goal of improving instruction to ultimately improve student achievement.

Nancy Love, Katherine Stiles, Susan Mundry and Kathryn DiRanna (2008) base the book, *The Data Coach’s Guide to Improving Learning for All Students* on a specific data analysis process called the Using Data project. In the project, teachers reported higher student achievement in a three year period by using data through collaborative inquiry and a practice of continuous learning recommended by the researchers (pp. 1-3). In these schools, Love et al. participated in a program that introduced the intervention of data teams led by data coaches and collaborative inquiry. The authors list several typically low-performing schools in districts across the country that have raised student achievement by instituting the Using Data project within their schools.

Love et al. (2008) stress the importance of the data coach and the data team for making decisions as an integral part of the data analysis process. Other authors have supported the notion that one person on campus needs to be responsible for data analysis. Joellen Killion and G. Thomas Bellamy (2002) wrote of teacher positions on each campus called “School-based data analysts” whose stipend pays them to “collect, organize, analyze, display, and facilitate discussion of school data” (p. 28). In following the Adams’ twelve 5-star schools in Colorado which employed school-based data analysts to assist in data management on campuses, Killion
and Bellamy found that both administration and faculty valued the analysts because of their ability to provide current data when necessary. They also mention that such data analysts need training on the facilitation of conversations and the presentation and analysis of data in order to be successful. The authors note that data analysts ultimately help school districts become data-driven organizations because their job role specifically allows them the time and resources to assist anyone who needs help with data analysis.

Herman and Gribbons (2001) note that having someone available on campus especially to assist in data analysis would be useful due to the other pressing demands of teaching: “…teachers and administrators should not be expected to be experts in research/evaluation design and analysis, given the other pressing demands on their time and energy—notably teaching children and fostering their development” (p. 29). They advise that schools designate a school leader to take on the additional role of data expert in order to assist teachers and administrators who may need help.

Wellman and Lipton (2003) also suggest that collaborative teams be led by a facilitator during their discussions about data. They note that facilitators are necessary to structure conversations in order to drive out fear and ignorance concerning data: “Skilled facilitators shape collaborative cultures, creating structures and processes for understanding” (p. ix).

Although Young (2006) does not specifically call for a facilitator or data coach in the implementation of data-driven decision making, she reports many reasons why such a position may need to exist on a campus. Young followed four teams of teachers from two districts in their effort to employ data-driven decision making in the classroom. She suggests that what she calls “agenda setting” is what breaks down the barriers to data use by teachers. Agenda setting
is a leader’s task which “encompasses articulating the rationale for and expectations of how teachers use particular forms of data, modeling data use, planning and scaffolding teachers’ learning about using data, and structuring time to allow teachers to do so collaboratively” (p. 532). After analyzing coded results from 90 interviews of teachers and 73 observations of team meetings and professional development workshops, Young found that group structure and norms directly affected the teacher’s use of data. Although both districts implemented agenda setting differently in her study, the overall effect of agenda setting, which sets collaborative and organizational structures on teacher data use, was successful.

Buhle and Blachowicz (2008) suggest the employment of a literacy coach who can facilitate inquiry, which stimulates connections between assessment data, ideas, and people. The authors claim that such coaches must be present at the beginning of data analysis in order to get teachers to make necessary connections: “…it is naïve to believe that teachers will use assessment data to inform instruction without the coaching and support they need to begin the process” (p. 45). Authors note barriers to data-based decision making that teachers frequently face and suggest that a literacy coach breaks down these barriers by making data analysis easy and quick for teachers.

Several authors use the term data coach to refer to the same job as the peer coach mentioned earlier (Love et al., 2008; Killion, 2009; Knight, 2009). Although peer coaching provided a basis for the origination of the data coach, the data coach position consists mainly of data analysis and promoting teacher use of data to make instructional decisions. Current literature on this type of facilitators seems to form relatively the same job description of the data coach as employed in the North Texas district involved in this study.
Concerns-Based Adoption Model

Research using the concerns-based adoption model (CBAM) supports the idea of the importance of the facilitator in the change process. Hall and Hord (2001)’s focus on the value of incidents and interventions illustrate the power of a change facilitator in the implementation of an innovation. Listed below is a sampling of researchers who utilized CBAM tools to measure innovation success (see Table 2.1 for a summary).

Table 2.1

<table>
<thead>
<tr>
<th></th>
<th>SoCQ</th>
<th>LoU</th>
<th>IC Map</th>
<th>Modified</th>
<th>Measured</th>
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Note: Modified-Indicates whether CBAM tools were modified by researchers

An early research study backed by Hall and Hord reiterates how important a facilitator is
to implementing change. Huling, Hall, Hord, and Rutherford (1982) assessed the success of innovation implementation in three states: Colorado, where a school district was in its third year of implementing a new science curriculum, Florida, where a school district was in its second year of implementing a math curriculum, and California, where a district was in its first year of implementing a new writing program. In one year, the researchers followed principals in their efforts to help implement the district’s innovation on their campus. Teachers on those campuses completed Stages of concern Questionnaires four times during the school year and participated in levels of use interviews, along with innovation configuration conversations three times during the school year.

At the end of the study, Huling et al. were able to conclude through significant correlations that the year of implementation, district or innovation was not a factor of success. However, researchers noted that based on a change facilitator style ranking completed during the last meeting of the research staff, the principal is highly effective as a change facilitator. Huling et al. (1982) noted that the higher number of principal interventions and incidents that existed, the more successful the school was at implementation. These findings support the importance of change facilitators during innovation implementation.

Huling et al.’s (1982) research is one of few studies, which uses all three aspects of CBAM, including the stages of concern, levels of use, and innovation configuration. Pratt, Thurber, Hall and Hord (1982) studied two of the three districts mentioned in Huling et al.’s study for a longer period. In their study, Pratt et al. describe the Jefferson County, Colorado districts’ implementation efforts in detail, noting how the district used SoC, LoU, and innovation configurations throughout the implementation process to update Science program designers
and facilitators about the success of their science curriculum initiative. By the end of the third year of implementation, two-thirds of the teachers had moved to a routine level of use, which was what innovation developers had originally intended.

Unlike the two studies above, Gershner and Snider (2001) did not use the innovation configuration tool, but instead just used the stages of concern questionnaire and the levels of use interview to determine teacher experiences when implementing the Internet into their teaching. Gershner and Snider administered an unmodified pre-test SoCQ to all 49 teachers at the beginning and end of the school year. LoU face-to-face interviews were conducted within the first three weeks of the Internet initiative and then at the end of the school year. Results from the study indicated an increase in awareness concerns about using the Internet in instruction and those teachers who were at a non-use level decreased in number, while those who were at a routine or refinement level increased. The researchers concluded that a majority of teachers wanted more time and more support to utilize the Internet as a classroom resource, but were still advancing in their use of the Internet as a tool.

Some researchers used either the stages of concern or levels of use tool in their research, but did not utilize all the tools recommended in CBAM. Stephanie Mitchell (1988) presented a study on assessing data-based decision making using the levels of use tool from CBAM. She and her district wanted to know if teachers used the Portland Achievement Levels Test (PALT) data to make instructional decisions and whether that data use affected student achievement. Through initial administrator interviews and an examination of the PALT data reports, Mitchell determined four components of data use by which to assess teachers: “(1) the use of student achievement reports, (2) the use of school administrative reports, (3) the role of
evaluation reports in decision making, (4) the decision situations where evaluation reports are used” (p. 5-6). The researcher developed an innovation configuration checklist, which indicated all levels from nonuse to renewal, then spent about 20 minutes interviewing teachers and administrators on their use of the evaluation data.

Mitchell’s study did not support her hypotheses, but Mitchell concluded that although there was no difference in teacher data use of high performing and low performing schools, there were “positive trends in the relationship between teacher level of use and student achievement” (p. 17). She also found that 32% of teachers were still at the mechanical level of use after 10 years of implementing the evaluative data innovation in Portland schools, thus indicating more teacher inservice on data use was needed. Mitchell’s study illustrates the importance of the levels of use tool in assessing teacher use of data-based decision making.

Chamblee, Slough and Wunsch (2008) explored mathematics teachers’ stages of concern over a year-long professional development workshop on the use of graphing calculators. Using only CBAM’s stages of concern questionnaire, the researchers administered a pre- and post-test questionnaire to teacher workshop participants. The findings of this study indicated there were no significant differences between the pre- and post-test scores of the teachers. However, based on a deeper analysis of scores, the researchers were able to conclude that the more teachers learned about their graphing calculators, the more they were concerned with how to use them in their classroom. In addition, they noted that teachers were not starting at low levels of concerns about the calculators, thus supporting “the assertion that professional developers who design integrating graphing calculators in the mathematics classroom sessions need to move beyond ‘show-and-tell’ workshops” (p. 192).
Other researchers used the CBAM tools, but modified the tools to fit their study’s needs. In the past, Van den Berg and Vandenberghe (1995), as cited in the Van den Berg et al. (2000) study, modified the original stages of concern questionnaire to include 52 items and rearranged the number and sequence of items to fit their own studies better. Over time, this modified questionnaire, which is called the Dutch-Flemish questionnaire, has been proven both reliable and valid. The authors used the Dutch-Flemish questionnaire to answer the second part of a two-part study on teacher experiences while implementing an innovation.

The study completed by Van den Berg, Sleegers, Geijsel, and Vandenberghe (2000) stresses the importance of assessing the individual concerns when an innovation is implemented: “Problems can stem from the meanings or significance, which people give to the new situation generated by an innovation, and it is therefore important that we attempt to analyse and understand these personal meanings” (p. 332). They utilize CBAM because of its ability to assess the individual experience while implementing an innovation.

The researchers in this study assessed the effectiveness of a support program for the implementation of adaptive teaching. They define adaptive teaching as an individualized curriculum program for students with special needs, and the support program is designed to help facilitate the implementation of adaptive teaching within schools. Van den Berg et al. (2000) wanted to not only see what support teachers needed to implement an innovation but also to determine how teacher concerns developed over the course of the support program. Using a pre- and post-test design, the authors were able to conclude that teacher concerns did move up on the stages of concern continuum after the conclusion of the program, but there were still many more task concerns than other concerns.
Christou, Eliophotou-Menon, and Philippou (2004) also used a modified version of CBAM’s stages of concern questionnaire to determine teacher’s concerns about a mathematics curriculum that had been treated as an “event,” rather than a process as recommended by Hall and Hord (2001). When the curriculum was first introduced from 1995-2000, teachers were given a two-day training about the curriculum and then were left alone to figure out how to implement it into their daily instruction. As a result, the authors wished to find out exactly where teachers concerns could be placed.

Interestingly, the researchers modified their stages of concern questionnaire by changing the number of items to 36, rearranging the sequence and wording of the items, and eliminating the first stage of concern because all teachers involved in the study were aware of the innovation. After a factor analysis, Christou, Eliophotou-Menon, and Philippou determined the stages of concern on their instrument to be similar to Hall and Hord’s (2001) original instrument. Christou et al. (2004) concluded that most teachers were still focused on the task phase of implementation, where concerns centered on daily instructional practice instead of the impact of the innovation on students.

Donovan, Hartley, and Strudler (2007) only modified the open-ended questions on the original SoC questionnaire. They utilized the stages of concern portion of CBAM in their study of teacher concerns during a laptop initiative at a middle school. Donovan, Hartley, and Strudler only administered the SoC questionnaire once, at the beginning of the laptop training. Then, they used casual, impromptu one-legged interviews to help themselves locate teachers on the stages of concern continuum.
There were two noteworthy nuances to this study. Donovan, Hartley and Strudler treated the two administrators differently in their assessment by not requiring immediate completion of the SoC questionnaire, and they structured their interviews with the administrators differently than with the teachers. With administrators, the researchers took on a more professional role as compared to teachers. In addition, the researchers were considered change facilitators of the laptop initiative by teachers involved in the study because of how often the researchers were on campus. Even with these conflicts, however, the researchers were able to determine that teachers were mostly at the self (personal) or task (management) level, indicating to researchers that change facilitators must work to raise teachers’ comfort level with technology first before asking teachers to combine laptop use and instruction.

Another group of researchers who modified their SoCQ to fit their study’s needs was Poynton, Schumacher and Wilcenski (2008). These researchers used only the stages of concern tool from CBAM to determine counselor perceptions of a new program initiated by the Massachusetts School Counseling Association (MASCA). Using Bailey and Palsha’s (1992) five level stages of concern where they eliminated the Informational and Refocusing stages, Poynton et al. (2008) analyzed questionnaire responses by determining primary, secondary, and lowest stages of concern for each individual respondent. The data collected led Poynton et al. to conclude that MASCA would greatly benefit by offering more professional development that would help counselors see how the new program could be implemented at their own schools.

Rachel Ragland (2007) used both the SoCQ and LoU interview from CBAM, but modified both to fit the program she was assessing. To assess the overall effects of the McRAH (Model Collaboration: Rethinking American History) program in Waukegan, Illinois, Ragland used CBAM
to track teacher concerns about the program, the overall use of the strategies provided in the program, and the “sustainability of the use of the strategies after the project concluded” (p. 43). Ragland determined that although some of the strategies were not used as much as others, most teachers’ Level of Use had moved up to a Level 4 or higher by the third year of implementation. Ragland concluded that these higher levels of use indicated readiness not only to use the strategies for a long time but also to modify them to better accommodate students. In addition, teachers’ stages of concern had moved to stages 5 and 6, showing more confidence and excitement about the strategies.

Although many researchers modified the tools to best fit the needs of their studies, the use of CBAM to assess an implementation process proved beneficial. Researchers commented on the usefulness of the model in gaining insight into the individual teacher’s perception of the innovation implementation. Ragland (2007) writes that the reason she used CBAM to assess the success of the project was “an awareness of the developmental nature of the process teachers experience in adopting and sustaining changes in educational practice” (p. 44). To Ragland, CBAM focuses on the change process and how each individual experiences that change, and she notes that being able to fully assess the entire process was necessary to truly grasp the effects of the program. Gershner and Snider (2001) also noted, “The use of the CBAM model is promising for the assessment of innovations and reform” (p. 298).

Few researchers studied the effects of a change facilitator, incident, or intervention on the innovation’s implementation. Research on these areas is needed to find what change facilitators can do specifically to support the success of an innovation. There is also a need for more studies utilizing the complete CBAM to determine the progress of teachers through the
change process. By using all three CBAM tools recommended by Hall and Hord (2001), researchers can more easily substantiate CBAM as a valuable asset in any innovation endeavor.

Summary

The literature review above indicates that, although termed differently throughout the years, data-based decision making has long been a part of the educational lexicon. Empirical research suggests that data-based decision making can be successful when instructional changes are made based on the analysis of data. Some researchers have advised that specialists such as the data coach facilitate data conversations with groups of teachers to ensure that instructional change occurs. However, the amount of concrete evidence supporting this notion is minimal.

In regard to the research questions driving this study, the literature review provides support for the use of data to make instructional decisions. Over the span of more than fifty years, making data-based decisions in classroom instruction, in its many forms, has assisted teachers in making the art of teaching based more on evidence than on intuition. In addition, based on the reviewed research, the three tools of CBAM provide an empirical measurement of teacher use of and their concerns about an innovation. In order to assess the influence of the data coach on teacher use of test data to make instructional decisions, CBAM provides a concrete measurement of teacher level of use of test data to make decisions. This model also assesses teacher concerns about the innovation. Past research supports the study of whether data coaches influence teacher use of data to make instructional decisions.
CHAPTER 3

METHODOLOGY

Research Method

This study was designed to assess the level of use of educational data and intervention strategies recommended by a data coach on instructional change, as observed through follow-up, persistent interviews.

Research questions for this study included the following:

1. How does the data coach influence teacher use of test data to make instructional decisions?

2. How does the data coach resolve teacher concerns about using test data to make instructional decisions?

The working assumption of this study was teachers would increase in levels of use of educational testing data to change instruction over the period of one year, as measured by the concerns-based adoption model levels of use (LoU) instrument. It was assumed that teachers would also increase in levels of use when meetings with the data coach are provided in conjunction with data presentation. Teacher stage of concern (SoC) would also increase due to the intervention of the data coach on utilizing educational test data to change instruction, as measured by the concerns-based adoption model stages of concern instrument and an innovation configuration map.

Boundaries of This Study

The boundaries of this study are limited to the three cases involved, which include three middle schools, each with one math teacher and one data coach.
Setting

School A

In the 2008-2009 Academic Excellence Indicator System, School A reported a population mainly made up of 58% White students and 28% Hispanic students. Of its nearly 700 students, 30% were economically disadvantaged, and 7% were categorized as limited English proficient.

School A’s math classes met for a blocked 90-minute class every day. During the extra 45 minutes of class time, teachers were scheduled to remediate students on weaknesses and provide TAKS practice. There were only two 6th grade math teachers on campus. One had an extended absence while on maternity leave and the other, who was involved in this study, had an extended absence because of personal reasons. As a result, data sources were limited to three interviews, two SoCQs, and two LoU interviews with the School A teacher, when compared to the four interviews, three SoCQs and two LoU interviews completed with the other two teachers involved in this study. Although there were fewer data sources available, the data represented a beginning and end of the year assessment of the teacher’s concerns and use of the innovation.

School B

There were 620 students enrolled in School B during the 2008-2009 school year. The majority of School B was made up of 45% Hispanic students and 37% White students. School B’s population was 52% economically disadvantaged, and 21% of the population was limited English proficient.

At School B, the principal set aside a 2-hour 6th grade math block every day and added
two extra 6th grade math teachers for a total of four, as compared to the other middle schools which only had two 6th grade math teachers. Each 6th grader attended math class for 90 minutes a day; the first 45 minutes was spent covering new material and the second 45 minutes was spent on remediation and tutoring to meet students’ needs. In theory, the four 6th grade math teachers would meet on a consistent basis to plan ways to raise student performance through data analysis during each two-hour block. Besides giving the district-mandated CBAs, the 6th grade math team created and administered unit pre- and post-tests, and then analyzed the resulting data to determine how best to meet student needs. In an email conversation with the researcher the principal noted,

Our math block proved to be a real success not only because of the extra hour of math but because of the way the math teachers worked together to assess the data and develop lessons to meet the deficits of each individual student. The crucial part was the way in which the teachers swapped students on a weekly (and sometimes daily) basis to ensure the students were re-taught by a different teacher, thus having the students see the instruction in a completely different way.

The school principal’s feelings of success were affirmed by Becky, this study’s participating teacher and a member of this school’s 6th grade math team:

The impression I get is the fact that they have the two classes blocked like that, and we were able to use the extra time to teach and re-teach, do activities, um, let them practice in class, and get to get feedback from whether they got it right or wrong was the main thing...and having more time, they were able to develop those basic skills and we were able to work in more TAKS questions during the year. They were exposed to more. They knew what to expect more than they would if they would have had (with) half the time...

Becky, and the principal, thought the time allotted to the students in these math classes made a real difference in student preparation for not only the TAKS test but also 7th grade.
School C

Of its 900 students in the 2008-2009 school year, the School C population was mainly made up of 48% White students, 31% Hispanic students and 16% African American students. School C reported 37% of its students as economically disadvantaged and 12% as limited English proficient.

School C provided an environment conducive to team planning. All 7th grade math teachers had a “team time,” where teachers met with either their 7th grade team or their discipline department. Teachers also had an individual 45-minute planning period each day. Math classes were blocked for two 45-minute periods, allowing time for remediation. However, the focus for this school was not data analysis; it was planning, as admitted by the principal of School C in a phone conversation in July after the end of the school year. Over the phone, the principal explained that what he hoped was that the teachers were using data to plan, but there was no way to guarantee their use of the data or the plans. Although the data coach did meet with the teachers in the fall, the teachers did not use their planning time for data analysis as described by the teacher involved in this study, Christy.

Population

The sample was three middle school math teachers, two 6th grade and one 7th grade, and three middle school data coaches. All participants were identified from a school district in northeast Texas. The racial/ethnic and gender percentages of the teachers in the district, as reported in the Texas Academic Excellence Indicator System (AEIS) report from 2007-2008: 3.6% African American, 5.7% Hispanic, 89% White, .9% Native American, .8% Asian, 19% male
and 81% female. The teacher sample age range was 23-40, two of the teachers were novice and one teacher had been in the district for 12 years. The data coach sample age range was 30-60, with an average number of years working for the district was 6 years.

Sampling Method

Population sample was determined through three avenues. Before the beginning of the school year, I met with new hire novice middle school teachers and asked for volunteers. Nine middle school teachers volunteered. However, 7 of the 9 volunteers were employed in subject areas that would not be administering CBAs (English, special education, and physical education). Two of the 9 volunteers were 6th grade math teachers from two different schools on the west side of the district, who were the only two teachers who would be administering CBAs during the school year. After the initial meeting, I asked the district math coordinator to recruit volunteers through meetings with middle school math department chairs and other district math teachers over the summer. I also sent emails out to three data coaches from middle schools on the east side of the district to ask for volunteers. No teachers responded to the math coordinator’s requests, but two campus data coaches responded to my email request, and they both gave the names of their 6th grade math team. I then emailed those teachers and received two responses, one teacher from each school. After email correspondence between myself and the two teachers, only one teacher volunteered to participate in the study. As a result, the sample size of three teachers and three data coaches, one data coach and one teacher from each school, served as the subjects. Due to the time constraints limiting the scope of this study, the search for volunteers was ended in order to begin the study at the start of the
2009-2010 school year. To maintain confidentiality and protection of human subjects, I identified participants only by a four-digit number chosen by the individual teacher in all written documents and recordings, which were kept in a locked cabinet for security purposes. During data analysis and presentation, participants were identified only by pseudonyms that I chose.

Participants

Teachers

School A-Amy

Amy taught twelve years before the beginning of the 2009-2010 school year. She was the department chair and taught regular and pre-AP 6th grade mathematics. At the beginning of the year, Amy began to experience personal problems, which took her away from the classroom for extended periods. She missed many days of school in the fall semester, and in early spring, she took a leave of extended absence. During her absence, a district instructional specialist was called in to help the substitute prepare the students for TAKS, because the data coach noticed that Amy’s class was not completing the CBAs in a timely manner. Amy’s principal investigated and discovered that her class was 6 weeks behind in the district curriculum. After her absence, Amy returned to a classroom reorganized by an instructional specialist who worked with Amy for another 2 weeks to help her adjust to the new structure. Afterward, the instructional specialist periodically checked up on Amy until the end of the year. Because of her absences and inconsistencies in the classroom, Amy was demoted from the department chair position.
School B-Becky

At the beginning of the 2009-2010 school year, Becky was a first year teacher from a four-year teaching program in another state. She was a 6th grade math teacher at this campus. She was described as quiet by her data coach, and she rarely talked during data conversations with her team and data coach.

School C-Christy

Christy was a first year teacher in 2009-2010, graduated from a four-year college teaching program in Texas. Due to personal issues, she was only able to meet with her data coach on an individual basis. She never participated in a group conversation about data.

Data Coaches

School A- Allison

Allison had been working in this district for 8 years. Before that she received her doctorate in curriculum and instruction and worked at several companies that served public education. During her 8 years on this campus, Allison taught a math lab at the middle school, and during her free time, she would advise the principal on curriculum decisions and run data reports for the administration. Once she was hired as a data coach, she continued her data conversations with administrators, regularly met with teachers regarding data, and still remediated students after school.
School B-Beatrice

Beatrice had worked for this district for 11 years. She had been a U.S. history teacher and then a 6th grade social studies teacher. Her promotion to data coach occurred because of her desire to leave the classroom and her experience with assisting administrators with testing organization. Beatrice only met with the 6th grade math team concerning data on this campus.

School C-Cynda

Cynda’s first year back to work was the 2009-2010 school year. In the past, she had been a special education teacher and department head. She was hired as the data coach at this school because of her special education background and her natural strength of leadership. Cynda met with math and science teams on this campus as often as possible until her duties as a test coordinator took priority.

Phenomenological Perspective

The influence of the data coach on teacher use of data must be studied phenomenologically in order to explore thoroughly the lived experiences of both the coach and the teacher and their resulting relationship. Alfred Shutz (1967) writes that the phenomenological perspective was originally defined by Max Weber “not as metaphysical speculation but as the simple and accurate description of life in society” (p. 5). However, Shutz argued that Weber’s ideas behind sociological research were incomplete. Although meaning can be determined by an individual’s actions, there is also meaning behind the actions. Shutz demands that researchers not only determine meaning from an individual’s actions, but delve
In this study, my present position of a data coach might affect the participant’s understanding of the phenomenon of the influence of the data coach on teachers’ use of data to make instructional decisions. By assuming a phenomenological perspective, I was better able to identify theoretical and cultural patterns within the data. During data collection, I bracketed her own knowledge of teachers’ use of the innovation in order to “temporarily suspend what we think we already know and actively listen to patients and their individual reality” (Hamill, 2010, p. 17). Therefore, data coaches and teachers were interviewed about the data meetings to determine the teacher and data coach behavior before and after the meeting in order to understand the meaning behind the actions. In addition, I engaged data coaches in a series of three interviews. All participants were interviewed periodically concerning their actions before, during, and after data conversations. In addition, I assessed teacher behavior in regard to data use in instructional decision making with the three tools of CBAM: Stages of Concern Questionnaire (SoCQ), levels of use (LoU) interviews, and placement on the innovation configuration (IC) map. Once all of these areas were explored, I was better able to understand the overall nature of the meetings and the innovation for the teachers and data coaches in a true phenomenological fashion.

**Instrumentation**

*The Three-Interview Series*

Although not part of the CBAM model, Seidman’s (2006) three-interview series provides
researchers with an in-depth look into “the lived experience of other people and the meaning they make of that experience” (p. 9). In this study, the tools of CBAM measure the teacher’s experience with an innovation, but the research questions in this study attempted to assess the relationship between the teacher and the data coach. Knowing more about the data coach allowed a more complete examination of how a data coach interacts with teachers. In order to better understand the daily actions and duties of a data coach, it was necessary to examine the data coach’s perspective and background. Not only did I need to find out how a data coach came to be a data coach, but I also needed to understand of the meaning and purpose behind the data coach’s job from the data coach’s perspective. Seidman's phenomenological, three-interview series allowed a better understanding of the data coach’s perspective.

The three-interview series consists of three separate interviews all held within 3 to 7 days apart. Seidman argues that keeping the spacing short between interviews allows the participant to “mull over the preceding interview” and forms a bond between the interviewer and her participant (p. 21). Seidman recommends that each interview last at least 90 minutes: “Given that the purpose of this approach is to have the participants reconstruct their experience, put it in the context of their lives, and reflect on its meaning, anything shorter than 90 minutes for each interview seems too short” (p. 20). Each of the interviews has a specific purpose and sequence. The first interview focuses on the life history of the participant, asking them to “reconstruct their early experiences in their families, in school, with friends, in their neighborhood, and at work” (p. 17). The second interview attempts to glean information about the job of the participant through “details of their experience upon which their opinions may be built” (p. 18). The third interview asks participants to “look at how the factors in their lives
interacted to bring them to their present situation” and “reflect on the meaning of their experience” (p. 18). This structure of interviewing provides participants with a road to follow, an avenue that leads interviewees to reflect about the context and meaning of the job they currently hold. I completed the three-interview series with all three data coaches within a two-week window at the very end of the fall semester, mid-way through the school year.

Concerns-Based Adoption Model

The concerns-based adoption model included three tools that accurately assess change participants’ location in the innovation implementation process: stages of concern, levels of use interview protocols, and the innovation configuration map. These three tools have been tested for reliability and validity as documented by Hall and Hord (2001). In order to gain the most accurate portrayal of the data coach intervention and teacher use of testing data to change instruction, I employed all three tools in the study.

Stages of Concern

Fuller’s (1969) teacher concerns research influenced Hall and Hord (2001), who outline the importance of assessing a participant’s concerns about the innovation in order to respond properly to the participant’s needs. Van den Berg, Sleegers, Geijsel, and Vandenberghe (2000) stress the importance of assessing the individual concerns when an innovation is implemented: “Problems can stem from the meanings or significance, which people give to the new situation generated by an innovation, and it is therefore important that we attempt to analyse (sic) and understand these personal meanings” (p. 332). They used CBAM because of its ability to assess
the individual experience while implementing an innovation. An accurate placement of participants on the stages of concern continuum allows researchers to access personal information about change participants’ attitudes and concerns about a particular innovation.

To assess the stages of concern of participants in this study, this study used the Stages of Concern Questionnaire (SoCQ). The SoCQ placed participants within 6 stages of concern about an innovation as defined by Hall and Hord and as used in this study (see Appendix A). This questionnaire is made up of 35 items and “has strong reliability estimates (test/retest reliabilities range from .65 to .86) and internal consistency (alpha-coefficients range from .64 to .83)” (Hall and Hord, 2001, p. 147).

Teacher participants in this study received the questionnaire as provided by Hall and Hord (2001), with the innovation name of “using test data to change instruction” as the only modification to the 35-item questionnaire. However, as suggested by George, Hall, and Stiegelbauer (2006), I added 7 questions to the demographic page at the end of the questionnaire “to gather other information about the respondents for both sample description and correlation purposes” (p. 25). I included questions that clarified participants’ job description and background, along with 5 open-ended questions concerning the entire research process and overall job description. Because Hall and Hord recommend sparing use of the questionnaire (p. 148), the questionnaire was only administered at the beginning, middle and end of the school year.

Levels of Use Interview Protocol

The levels of use interview protocols assist researchers in determining if the participant
is using the innovation to its fullest potential. Hall and Hord (2001) write that the SoCQ helps to
determine the participants’ feelings about the innovation, and the levels of use interview helps
to determine the participants’ behavior with the innovation. According to Robert Weiss (1994),
the addition of an interview to a standardized procedure like the stages of concern
questionnaire allows the researcher to elicit “more from respondents than a choice among
categories or brief answers to open-ended items” (p. 2). I used the levels of use basic interview
protocol outlined by Hall, Dirksen, and George (2006) to determine where the participants were
in the change process. By using this tool, researchers are able to assess how the participants are
implementing the innovation on a scale of 8 levels (see Appendix B), and in 1977, Hall and
Loucks found that the correlation coefficient between actual teacher behavior and interview-
assessed behavior was .98, indicating high validity for this interview protocol. The questions
were not paraphrased or changed, as recommended by Hall, Dirksen and George (2006), and I
used the designated probes to better assess category placements (pp. 53-56). The levels of use
interview was administered at the same time as the SoCQ, but only at the beginning and end of
the school year.

Innovation Configuration Map

Facilitators and creators of innovations must have a product in mind when
implementing an innovation. According to Hall and Hord (2001), often such goals are not
portrayed in a concrete enough manner for participants to fully implement the innovation in a
way that meets expectations. The innovation configuration map provides an avenue for those
facilitating a change to adhere to the fidelity or true definition of the innovation by following, in
essence, a map of how the innovation creators want the innovation to be implemented.

An innovation configuration map (IC map) is made up of 8 to 15 components, and each component has from 2 to 6 variations. Each of the components is an essential behavior of the innovation that developers want participants to exhibit. The variations then are the nuances of the behavior that participants may actually exhibit once the innovation has been introduced. Those who create the IC map must use clear, concise word descriptions of each behavior so that anyone implementing the innovation will understand what is expected.

In this study, due to time constraints, I created the IC map before the first interview. In the IC map created for this study, the components were adapted from the National Staff Development Council’s *Moving NSDC’s Staff Development Standards into Practice: Innovation Configurations* – teacher participation, using data to change instruction based on data meeting, and using data to reflect on teaching practice (Hirsch, Roy, & Hord, 2003). However, because participant input is recommended for an accurate IC map (Hall and Hord, 2001; Huling et al., 1982), participants were asked for input about the design of the map, and changes were made accordingly as the study progressed. After administering the SoCQ and the LoU interview, I asked the teachers to locate themselves on the IC map and what descriptions they would add to the map to accurately portray their map location, for a total of three times throughout the school year. On the same day, I also asked data coaches to locate the teacher in their school on the map. Asking data coaches for this information allowed another perspective on the relationship between data coach and teacher. See Appendix C for the final IC map.
Data Collection

With the exception of the three-interview series conducted with the data coaches, both teacher and data coach conversations with the researcher occurred about two weeks after each administration of a district-mandated curriculum-based assessment (CBA), for a total of 4 times throughout one school year. During conversations, I assessed teacher use and access of CBA data before, during, and after the meeting and/or administration of the CBA. In order to create operational measures as suggested by Yin (1994), I used pre-determined questions for interviews with teachers concerning meetings with data coaches. The tools of Hall and Hord’s (2001) concerns-based adoption model were used as a measure of concern and the extent to which teachers used data from the CBAs to change instruction. These conversations, or interviews, were taped and then transcribed.

Three of the four interviews with teachers included a Survey of Concern Questionnaire and a conversation about the teacher’s location on the IC map. At the first and last interview, teachers participated in a LoU interview to determine whether they used test data to change instruction. All four interviews included pre-determined questions about the meetings with the data coach and whether they used test data in between meetings with the data coach (see Appendix D). Questions were also asked concerning the teacher’s use of data and interactions with the data coach. These interviews in total lasted on average about thirty minutes. One middle school teacher, however, did not complete a Stages of Concern Questionnaire and IC map placement interview or other interview questions in the middle of the year because of the teacher’s leave of absence due to personal conflicts outside of school. This teacher did
complete an SoCQ, an LoU interview, and an IC map placement interview at the beginning and end of the school year.

In addition to the three interviews conducted mid-year, the four conversations with the data coaches included pre-determined questions about past meetings with the teachers involved in the study, along with questions about current job description and duties required at the time of the interview. Data coaches were also asked to locate where they thought the teachers involved in the study were located on the IC map. These interviews with the data coaches lasted on average about thirty minutes as well.

Data Analysis

Audio recordings of all of the teacher and data coach interviews were transcribed into word-processing document files. I created two worksheets in a spreadsheet software, one for each teacher and each data coach interview. I then cut each comment from the document file and pasted the comment into the corresponding spreadsheet software worksheet, placing each comment into a separate row. In each row, one column represented the participant number and date of the interview. Another column held the code for the category in which the comment best fit. Moreover, the third column contained the actual transcribed quote from the interview. Codes were developed as interviews were transcribed. Codes were then sorted and relabeled into larger groups, with sub-groups underneath, as recommended by Corrine Glesne (2006). See Appendix E for a model of how the data was entered into the spreadsheet.
Stages of Concern Questionnaire

Each of the three teachers’ SoCQs were analyzed using the guide provided by George, Hall, and Stiegelbauer (2006). The results of each questionnaire were charted on the Stages of Concern Quick Scoring Device (pp. 85-87) then analyzed according to the guidelines and interpretations provided in Chapters Four and Five of the guide (pp. 23-54).

Levels of Use Interview Protocol

Transcribed levels of use interviews were analyzed according to the guide provided by Hall, Dirksen, and George (2006). Each level of use interview was charted according to the levels of use of the innovation with decision points table (p. 7), then each of the 7 categories were assessed and charted by following the LoU Rating Sheet and the Guidelines for Rating Levels of Use Categories (pp. 57-66). Once all categories were assessed with supporting quotes from each interview, I then rated an overall level of use for each interview according to the descriptions outlined by Hall, Dirksen, and George (pp. 11-15).

Innovation Configuration Map

The IC map in this study was used to correlate data concerning teacher use of test data to change instruction. Teacher placement on the IC map by the teacher and the data coach and resulting discussions about teacher placement on the map were analyzed for similarities and differences. I compared the teacher’s self-placement on the IC map to the results of her levels of use interview and stages of concern questionnaire. Also, I looked at whether the teacher’s placement on the IC map differed from the data coach’s perceived teacher placement on the
map. The analysis of the IC map data allowed me to support the findings of the other tools involved in this study.

I engaged in a three-category process for making meaning with the data collected over the school year. In her book, *Becoming Qualitative Researchers*, Corrine Glesne (2006) describes a three-step process for interpreting qualitative data. The first step is description, where the researcher makes meaning from the interview transcripts “selecting and portraying details that resonate with the study’s purposes” (p. 164). During this step, I read each interview transcript, selecting quotes, which supported each individual’s placement in the stages of concern, levels of use, and IC map tools. During the second step, which Glesne calls analysis, I found commonalities between the participants and cut and pasted quotes which supported the general conclusions found at the end of this study’s chapter 4. Finally, in what Glesne calls the interpretation phase, I examined the successes and failures of the teachers and data coaches, the details of the relationships between the two entities and then found common themes that ran through all three schools.

Summary

The purpose of this study was to explore the relationship of the data coach and the teacher, and the resulting change, if any, on teacher use of data and instructional strategies. This study answered the following question: How does teachers’ use of analyzed data for instructional decision making, based on their experiences with a data coach, change over the period of one school year? This study also ascertained how a teacher’s level of use of test data to change instructional strategies changes in regard to meetings with a data coach. In addition,
this study explored the relationship between teacher stage of concern and data coach interaction in regard to the innovation of using test data to change instruction. To answer this question, I used questionnaires and interviews spaced evenly over a span of one school year. Through the administration of Hall and Hord’s (2001) Stages of Concern Questionnaire, I determined how a teacher’s concern about using test data to change instruction changed over time. Through teacher and data coach interviews and the use of an innovation configuration matrix, I ascertained a teacher’s movement on the Levels of Use scale presented by Hall and Hord. Data provided by the methods above provided the educational community a better understanding of the effect of the data coach on teacher actions in the classroom.

This research study added to the minimal amount of research on the innovation of teacher use of test data in instructional planning by contributing insight into teacher stages of concern and levels of use during one school year. It also provided important information about the influence of the data coach on teacher use of data and instructional strategies. Such valuable insight into teacher concerns about and use of data to change instruction and the influence of middle school campus data coaches can only enhance the data coach practice and the innovation of teachers using data to drive instruction.
CHAPTER 4
DATA ANALYSIS

Introduction

This chapter presents data analysis and findings for multiple-case studies, of three middle school campuses in a North Texas school district regarding teacher use of the innovation, using test data to change instruction, as influenced by interactions with the data coach. The data analyzed were Stages of Concern Questionnaire (SoCQ) results, levels of use (LoU) interviews, innovation configuration (IC) maps completed by teacher and data coaches concerning the teacher, and a three-series interview on each data coach. The method of analysis applied was a three-step process: description, analysis, and interpretation. In the explanation below, each school is represented by a letter, A, B, or C, and the corresponding data coaches and teachers have been given a pseudonym beginning with the letter of the school. An in-depth description of the campus data coach, the campus teacher involved in the study, and the resulting relationship between the teacher and the data coach characterizes each school description. Each case study provides a unique perspective on teacher use of the innovation and an in-depth description of the teacher’s relationship with the data coach and the innovation of using test data to change instruction.

School A

Data Coach A, Allison

Allison grew up in the northern United States in a large family. After a mentor professor encouraged her to pursue an educational career, she completed her bachelor’s degree in
science and then continued to get her master’s degree in curriculum and construction, while continuing as a practicing teacher. She spent two years in the Peace Corps, and then moved to Texas because of the warm climate.

Once she completed her doctoral program while being a stay-at-home mother, Allison started working for companies specializing in educational support. For three different companies, Allison was a curriculum planner, curriculum director, and an educational technology facilitator. After her third company dissolved, she moved back into the school system. She described her first year back at a middle school:

I found out I was hired, knowing I didn’t teach math, I was hired because I had a PhD. I found that out after the fact. One of the things that first year...because I sat in the library the first six weeks with nothing to do because [my principal] didn’t know what she was going to use me for. It ended up being a pull out program and it worked out that I would just go in and pull out the low and work with them in the computer lab.

Allison began teaching a math lab at the middle school, and during her free time, she would advise the principal on curriculum decisions and run data reports for the administration.

Because Allison knew how teachers felt about her current principal, she kept their relationship very private and professional:

[My principal] was very vocal about not knowing about curriculum so she used my expertise in that field. I noticed I had to be very careful that...because she was not a very popular principal...to hold respect with the teachers. I would always make sure that our conversations were if she was in her office her blinds were closed I never let it be a social situation although I got invited for it to be a social situation...do you want to go to dinner, well no, [my husband]’s at home expecting me. So I didn’t let it develop into that, but she always gave me an extra planning periods to do data planning. The math lab was successful. I felt very rewarding with that. I had kids passing the TAKS that had never passed before and some of them even got commended.

Allison’s success as a math lab teacher and the assistance she provided for her principal allowed her to step in as the campus data coach when the position came available. She explained,
So I kind of was always doing some of what I do now for [my first principal] and when the position came available, [my current principal] was here that first year and I heard about it and just told him I would like to do that. He didn’t even tell anybody else because it was just a given that I would take that over at the semester. It was very hard to give up the math lab.

Allison explained why she wanted to be a data coach, stating that from the time she was 16 and working at a supermarket, she always liked crunching numbers and “zeroing out” her cash register. Once she started running data reports for school administration, she realized that she also enjoyed crunching numbers in education.

I think because I realized I was doing a lot of that with the AEIS-IT (former district data management software) stuff anyways, I liked the idea of helping kids. I always did an item analysis with math lab. I think I saw the opportunity to do that school wide would be good.

Allison’s job description as a data coach on this campus was not just running reports and analyzing data, although she did frequently complete data analysis and subsequent reports for teachers and campus administration (see Appendix F). As illustrated in Appendix F, Allison’s job duties differed slightly from other data coaches. Besides the usual test coordination duties and required data reports, she organized documents and recorded information for several programs at the school. The response to intervention (RTI) program at her school was mimicked by the rest of the district after its second year in implementation. Part of Allison’s job was to organize all the student folders involved in the RTI process, which was a lengthy process at the beginning of the year. She also was responsible for administrating and recording results in AWARE for the Gates Macginitie Reading Assessment given twice a year to all students at the school. Finally, Allison also periodically tutored students in math when necessary.

Allison’s data conversations occurred throughout the year. Because she had been assisting campus administrators with test coordination for a few years before becoming data
coach, she already had an organization strategy that left more time for conversations with teachers. Her conversations were mostly based on the item analysis report, which compared the teachers to district performance on each individual question.

As a data coach, Allison considered her job as a liaison between administrators and teachers important to her position. She avoided being categorized as an administrator by not participating in the administrators’ weekly meetings, and in the past, even going as far as meeting with the principal only if the office blinds were drawn. Allison prided herself in not being thought of an administrator so that data conversations would not be threatening: “I think for the most part, because I’m not seen as an administrator, I’m not viewed as a judgment thing.”

For the most part, Allison relied mostly on her experience and relationships with teachers to institute change within the school. She described why she was perfect for the data coach position,

I think all of my living experiences that I bring to this position are a big factor. You have to pull from lots of experiences to draw people out to be reflective. I’m tapping into them intellectually and emotionally to be able to have that good relationship.

For her, her knowledge and experience were what teachers needed to be successful. She believed she was a resource for the teachers, “There isn’t anyone on this campus who doesn’t appreciate the breadth of experiences I have.” Therefore, although she described the job of the data coach as a “questioning position,” Allison mostly gave suggestions to teachers based on her own experiences.

Overall, Allison enjoyed her position of data coach. When asked her about future plans, Allison replied,
I’ll stay in this position as long as it exists here, and I don’t think I’ll leave the position, voluntarily until I can no longer lift those boxes. This is not a difficult job in any way; it’s time consuming. It’s not wasted time. It’s not time just put in as a job. There’s a need for this. I can look back and say the years I was in the classroom, this would have been a valuable position to have.

Because Allison was able to see the value in her position, she was ready to support her fellow teachers, one of whom was Amy. Her position as a data coach allowed her to serve others, which was the type of job she had been searching for since she started her college career. Her service at the school did not go unnoticed, as illustrated by the relationship described below.

**Teacher A, Amy**

Due to Amy’s extended leave of absence during this study, only three interviews occurred during the school year, and she only completed an SoCQ and levels of use interviews at the beginning and end of the school year. At the beginning of the year, she exhibited a peak level of concern of Stage 1, Awareness. At the end of the year, her concerns were highest at the Personal level. In addition, Amy’s levels of use interviews put her at a Level 0 Nonuse at the beginning and a Level 1 Orientation by the end of the year. Amy began the year a non-user of the innovation, and at the end of the year, although she was being led through the motions of a user, she still did not engage in any use of the innovation.

**Beginning of the School Year**

At the beginning of the school year, Amy’s answers to the questionnaire followed what George, Hall, and Stiegelbauer (2006) label as a typical nonuser profile. Her concerns were
highest in Stage 0, indicating that she had almost no concern about the innovation (see Figure 1).

Figure 4.1. Teacher A-Amy’s stages of concern.

At the time of the questionnaire, she had other activities or innovations that held more importance. Her initial profile also exhibits what George, Hall, and Stiegelbauer call a “negative one-two split,” where the Stage 2 score is higher than the Stage 1 score. They write, “When Stage 2 concerns override Stage 1 concerns, the concerns about an innovation’s effect on personal position or job security usually are greater than the desire to learn more about the innovation” (pp. 40-41). During a discussion about the meeting between her and her data coach, Amy found the purpose of the meeting to be more of an administrative check than a self-driven learning experience:

The purpose is to prepare us, to see where our breakdown in our teaching is. So I mean if the grades are below where the district is obviously there’s an issue. We’re not teaching it the right way or we’re not teaching it at all and we need to be teaching it because it’s part of our curriculum. I think it’s for them to help see everybody on campus...administration to see where those gaps are in our curriculum.
Because Amy’s personal concerns were higher at the time of the first questionnaire, her awareness of the innovation and her desire to learn more about the innovation were compromised.

In regard to levels of use, it was noted that at the beginning of the year Amy’s LoU was at 0, nonuse (see Table 4.1).

Table 4.1

Amy’s Level of Use

<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Acquiring Information</th>
<th>Sharing</th>
<th>Assessing</th>
<th>Planning</th>
<th>Status Reporting</th>
<th>Performing</th>
<th>Overall LoU</th>
</tr>
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<tr>
<td>Nonuse</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>[ ]</td>
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<td>[ ]</td>
</tr>
<tr>
<td>Preparation</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Mechanical Use</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>Routine</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
<td>IVa</td>
</tr>
<tr>
<td>Refinement</td>
<td>IVb</td>
<td>IVb</td>
<td>IVb</td>
<td>IVb</td>
<td>IVb</td>
<td>IVb</td>
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<tr>
<td>Integration</td>
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<td>V</td>
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</tr>
<tr>
<td>Renewal</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
<td>VI</td>
</tr>
</tbody>
</table>

Note: 〇 - Beginning of Year
□ - End of Year

Her initial LoU interview indicated that she knew about the innovation, but she had not implemented it into her classroom. Hall, Dirksen, and George (2006) mention that someone at the nonuse level can be someone who has no knowledge about the innovation. However, they note that the same level can “include the person who has acquired knowledge of the innovation but is not otherwise involved with or considering use of the innovation” (p. 11). In her interviews, Amy was able to describe the benefits of the innovation, and she knew how the innovation would affect her classroom. However, in data analysis, she was only noting low-performing questions on the CBAs and presenting them again to the students. Amy was not
changing instruction; she was merely revisiting problematic concepts if convenient. She explained her approach to using data:

It helps me when we look at their results on the CBA’s, then that’s what I take back and use for my warm-ups on the test or I use them on the next test. I’ll throw those types of questions on there as a review, and on their homework so they’re seeing them more often so that they’re more prepared for those types of questions.

Amy did not go out of her way to get more information on the innovation; she simply deemed her current use as acceptable and did not attempt to evaluate or improve the innovation at that time. Hall, Dirksen and George (2006) mention that an individual cannot cross the line to Level 1 Orientation unless the user is “at least LoU I in the Knowledge, Assessing, and Acquiring Information Categories” (p. 12). Although Amy knew about the innovation, she did not attempt to acquire information about the innovation and she did not share the innovation with others.

When asked about weaknesses of the innovation, Amy pointed out how she wanted to create practice questions similar to the students’ lowest performance CBA questions. However, due to perceived time constraints, Amy rarely found time to create new questions. Instead of asking the data coach for help in making these questions, she waited for others to provide the resource of new questions: “Our math coordinator does send us out...sometimes when their questions are really low, they’ll send us out those types of questions so that we’re not having to make those on our own.”

When asked about changes made to the innovation, Amy responded with a change she had made at the beginning of the year, which only indicated that she was actually not using data to change instruction. She says, “I mean...like I didn’t used to put them on...my warm-ups were more, um, just computation, where now I’ve moved to where my warm-ups are more TAKS based questions.” Amy believed that she was using data to change instruction, but instead
she decided that warm-ups should be TAKS-based because the questions on the CBAs were TAKS-based. Her decision had nothing to do with data.

Amy also did not work on improving the innovation in any way. Although she did meet with her fellow 6th grade teacher to plan before the teacher left for maternity leave, group planning was only based on the district online curriculum and not based on incoming data. When asked what she and her peers used to plan, she said that they just followed the online curriculum: “We use [the online curriculum] because every year it changes and we have to go back and revamp everything that we teach. We’re following the curriculum.” Amy used data to change warm-ups or tutorials for students, but not as a tool to change her instructional practices. She did not share the use of the innovation with others or try to revise her use of the innovation in any way, making her level of use at the O Nonuse level.

Amy’s self-placement on the IC map (see Table 4.2) indicated that if she was using the innovation, she had not yet moved past the minimal requirements of using test data to change instruction.

Table 4.2

**School A - Innovation Configuration Map**

<table>
<thead>
<tr>
<th></th>
<th>D.O.1</th>
<th>D.O.2</th>
<th>D.O.3</th>
<th>D.O.4</th>
<th>D.O.5</th>
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</thead>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amy (Teacher)</td>
<td>Level 3</td>
<td>Level 3</td>
<td>Level 3</td>
<td>Level 1</td>
<td>Level 2</td>
</tr>
<tr>
<td>Allison (DC)</td>
<td>Level 3</td>
<td>Level 1</td>
<td>Level 3</td>
<td>Level 1</td>
<td>Level 2</td>
</tr>
<tr>
<td><strong>MOY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amy (Teacher)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Allison (DC)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>EOY</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Amy (Teacher)</td>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 2</td>
<td>Level 2</td>
<td>Level 1</td>
</tr>
<tr>
<td>Allison (DC)</td>
<td>Level 3</td>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 1</td>
<td>Level 2</td>
</tr>
</tbody>
</table>

**Note:** DC - data coach, NA - not assessed, D.O. - desired outcome, BOY - beginning of year, MOY - middle of year, EOY - end of year
For Desired Outcome 1, 2, and 3, Amy labeled herself at Level 3, which means that she was analyzing test data for student improvement and self-improvement and that she met with her grade level peers about the data to determine goals. These first three desired outcomes could easily be met when meeting with a data coach. Amy would not have to initiate these things by herself. The administration, both district and campus, had policies in place that forced teachers to participate in activities which would at least put them at a Level 3 in all three outcomes. Administrative policies such as mandatory data coach meetings, mandatory participation in CBAs, and mandatory collaborative teacher planning time guaranteed for the campus and district that teachers would be participating in analyzing data. The same can be applied to Desired Outcome 4, where Amy rated herself at Level 1 for analyzing CBA test data at least 4 times during the school year because there were 4 CBAs and subsequently 4 meetings scheduled after the CBAs.

However, Desired Outcome 5, analyzing test data to change instruction, is a little more difficult because policies cannot be put in place to make teachers change instruction based on data. Moreover, an even more difficult aspect of the IC map accuracy would be the definition of “changing instruction.” Amy’s definition of changing instruction was changing warm-ups according to student needs as quoted above. Therefore, she rated herself at Level 2 for Desired Outcome 5, claiming to make future curriculum plans and re-teach material based on data. However, Amy’s definition of changing instruction is changing the type of questions on warm-ups. Her definition does not fit into the design of the innovation, and as a result, hence her characterization as a non-user.
End of the School Year

At the end of the school year, however, Amy’s SoCQ profile had changed and showed growth in her awareness of the innovation (see Figure 4.1). Although still possessing a typical nonuser profile as defined by George, Hall, and Stiegelbauer (2006), her Stage 0 concerns were much lower than her Stage 1 and 2 concerns. Her profile still showed a “negative one-two split,” where the Stage 2 score was higher than the Stage 1 score, but Amy’s final profile indicated that she became more aware of the innovation over the span of the school year. Although she was still worried most how the innovation would affect her personally, she exhibited a desire to learn more about the innovation and became more aware of the innovation than she was at the beginning of the year.

Amy’s LoU interview also suggests that she was still worried personally about how the innovation would affect her, but she had begun to embrace the idea of implementing the innovation fully in the coming year. Initially, Amy was at LoU 0, nonuse, because she was using the innovation according to her own definition. However, by the end of the year, Amy was considering the idea of implementing the innovation on her own. After the instructional specialist took over her classroom, Amy was required to participate in data-based planning sessions and attend data meetings with her data coach. The result of these two meetings, according to Amy, was that Amy planned to implement the innovation as designed at the beginning of the next year. Although the suggestions for change came from the data coach and a district instructional specialist, she claimed a plan to implement two major changes during the next school year: pre- and post-tests and data-driven two-problem warm-ups.

When discussing her decision to implement pre- and post-tests, Amy stated that she’ll
use pre- and post-tests next year, because, not only will it “not hurt anything” to try it, but her data coach had said, “what they were finding out is they were teaching stuff they already really knew so why spend the time on what they don’t know instead of what they do know.” She had made the decision to try out pre- and post-tests mainly because of her administrators’ wishes. Also, the revision to her warm-ups came mainly from the instructional specialist. Amy explained in Interview 3,

Some people came in and showed us some strategies and it’s something I picked up, but I’ve only been doing it for about six weeks so I know next year, that’s what I’m going to start with. And that’s how I’m going to start my school year. Like the half-sheet warm-ups, you know, I was giving them like five problems and it was almost overwhelming. And they were like do half-sheets for some reason when the kids see half sheets it’s less stressful so we put a problem on the front and a problem on the back. They just seem to do so much better with it.

Amy’s decision to revise her current warm-up practice was mainly based on the advice of an instructional specialist, which did not reflect innovation use.

As previously discussed, Hall, Dirksen, and George (2006) write that in order to cross the threshold from LoU 0 nonuse to LoU 1 orientation, the user must be rated at LoU 1 in the knowledge, assessing, and acquiring information categories. Amy had asked her data coach for information concerning pre- and post-tests. She had also asked her data coach to run reports on upcoming 6th graders’ past TAKS scores so that she could gear her warm-ups toward those students’ weaknesses. Her requests for information moved her to an LoU 1 for acquiring information. In addition, Amy moved up to Level 1 on her assessing category because of her description of her warm-up plans for next year:

It helped with this 6th grade so I’m thinking if we start at 5th grade strong suits, maybe we can pick up some of those things and work towards what they’re good at...and then they flip it over and it’s something they maybe kind of struggled for. It’s not going to be
specific for my kids but just more general strengths and weaknesses of the 5th grade as a whole of our feeder schools.

Amy initially made the warm-ups change because of the intervention of the instructional specialist. However, she also made the change because not only did it work for her current 6th grade class, but it had promise of working for her incoming 6th graders as well. She moved to a LoU I in assessing because she was analyzing “potential outcomes, strengths, and weaknesses for purpose of making a decision about use of the innovation” (Hall, Dirksen, and George, 2006, Appendix E). Therefore, Amy’s overall use at the end of the school year was LoU I orientation. Because Amy’s changes were not her own ideas, she was only pondering the use of the innovation, and therefore could only be categorized at LoU I.

Amy’s final IC map placement supports her growth in relation to the innovation as well (see Table 4.2). Amy stayed the same for Desired Outcome 1, using data to identify student priorities, but selected changes for the other outcomes. For Desired Outcome 2, Amy moved herself to a Level 2 from a Level 3 at the beginning of the year because, as she explains, “before [our data coach] I don’t think we were looking” at all of the data. Amy felt that because the data coach had led her in data analysis, she had begun to analyze all data instead of just classroom or CBA or TAKS data. In addition, she also moved herself up one level to Level 2, meeting with a learning team, “because I think we’re considered as a team by having [our data coach] in there, whereas before it was me and [my peer teacher] looking at it or me and [the new department chair].” For Desired Outcome 4, using data to improve the classroom, Amy selected a Level 2 over her initial selection of a Level 1. She explained her choice,

I don’t know that I was at Level 1 when I picked that, I think I maybe should have been [at a Level 2] because with this one...this is what I was thinking of 2...if we pull 5th grade objectives and we’ve never done that before so that would’ve pushed me to Level 1.
So, Amy still thought she hadn’t moved much in monitoring and revising school and classroom improvement strategies, but her change in her warm-ups for next year would make her move to a Level 1 in the future, which made her ultimately place herself at Level 1. Finally, in Desired Outcome 5, Amy placed herself at a Level 1 over her beginning of the year selection of a Level 2, claiming to have moved from analyzing student test data four times a year to continuously looking at data to change instruction.

Over the span of one very emotional and stressful school year, Amy became more interested in the innovation. By the end of the year, she was analyzing more than just CBA data, and she was open to the use of different kinds of data to supplement her teaching. By the end of the year, she had once again revised her warm-ups plan and was ready to use data to prepare over the summer for the upcoming year.

*Data Coach, Allison, and Teacher, Amy, Relationship*

Because Allison had been on campus as a math teacher for 6 years before becoming a data coach, she and Amy had a familiar working relationship. At the beginning of the year, Allison and Amy’s relationship was based on a professional respect for one another. When asked about their first data conversation, Amy mentioned the value of Allison in the position of data coach, “There were positive and negative things I guess you would say that I probably wouldn’t have looked at if she wouldn’t have shown it to me.” She also acknowledged the worth of the meetings she had with her data coach by stating that if she had not met with Allison, she would not have looked at the data in detail:

You know like I didn’t get to see it especially like with [my peer teacher]’s class and my class I got to see teacher to teacher...you know there were several that I was below [my
peer teacher]. Well I need to know how is [my peer teacher] teaching this. You know, what are some things that I can get from her to improve some of those objectives. So you know I probably wouldn’t have looked at that that detailed.

Allison also described her meeting with Amy as valuable. She stated, “The data was well received… [Amy] organizes and can pinpoint why they answered what they answered.”

However, when asked about what actions Amy might have decided on and carried through with after that meeting, Allison indicated that she and Amy did not communicate much outside of meetings. She lamented,

I never get the feeling that (they re-teach) partly because I’m not in when the two of them actually do the discussion of okay, we have to sit down and re-teach this and this is how we’re going to re-teach it.

Allison had to guess about whether Amy re-taught material or not. In the end, she could only hope that Amy was using the innovation in her classroom.

The disconnect between data coach and teacher at the beginning of the year is also evident in the data coach’s IC map placement of Amy on Desired Outcome 2. Amy had rated herself at Level 3 for Desired Outcome 2, but Allison was much more positive about Amy’s interest in data; she rated Amy at a Level 1. To explain her rating, Allison said, “She generally is concerned about the gender, SES, ethnicity but generally we look at it as well more than just we look at the specific.” Allison based Amy’s rating on what she and Amy discussed in her data meetings. However, Amy at the time did not take what she discussed at in the meetings back to her classroom.

Amy and Allison’s relationship seemed to change over the span of the school year. By mid-year, according to email exchanges between Allison and myself, Amy’s personal life had carried over into her professional life. Allison seemed to know many personal details about
Amy, which Amy did not share with me. Allison’s knowledge of Amy’s intimate personal life meant that Amy confided in Allison frequently, and by the end of the year, their relationship seemed more than just a peer relationship. Allison informed me about Amy’s personal conflicts and her extended leave of absence. Allison also suggested that this study’s mid-year assessment of Amy be eliminated because of Amy’s personal and professional issues.

Allison mentioned Amy’s personal conflicts several times throughout her interviews and hinted at the beginning of the year that those issues were already affecting Amy’s work. When filling out the initial IC map on Amy, I asked Allison why she rated Amy a Level 3 on Desired Outcome 1, instead of a Level 2 or 1 (see Table 4.2). Allison explained,

...because right now we’re not as much consumed into the whole school and definitely not the district and I’m gonna say some of it has to do with personal life right now. We are maintaining and getting by, and even though she’s department chair and I would want to go here, I just think, right now, we’re not there, yet.

Toward the end of the year, Allison was more specific about Amy’s personal issues, which led me to the conclusion that Amy was confiding more in Allison as a friend, instead of just a data coach. In her interview, Allison revealed private details of Amy’s personal life including her financial and emotional perils, but her words cannot be quoted here because the data are too sensitive to include in this document. The development of this personal and professional relationship is also evident when Allison discussed specific plans that Amy had put in place next year to use data to change her instruction. At the end of the year, Allison and Amy had made specific plans for the next school year based on data, compared to the beginning of the year when she admitted she did not know how Amy re-taught material. In June, Allison described Amy’s plans, which were decided on during their last data meeting:
We looked back on all the CBAs and took a look at the TEKS that this group was particularly low on that could be passed on to the 7th grade teacher to start the warm-ups in the fall with those TEKS. And then her warm-ups were gonna take the 5th grade TEKS from the TAKS test that were weak, and she decided she wanted to do one hard one which was one weak TEK and one high TEK...so a front and a back...they have two problems on their warm-ups every day.

Also, during Amy’s end of the year interview, she confirmed Allison’s assumption of her plans for next year:

And then for next year, [Allison] is printing off what the 5th graders did...their strong ones and their weak ones. And on the front I’m going to put a strong fifth...at the start of school, a strong 5th grade objective, and then on the back is going to be a weak 5th grade objective. So they’ll have an easy one and a hard one.

Both teacher and data coach were synchronized concerning future plans at the end of the year, which indicates a strong relationship between the two professionals.

Allison’s IC map placement of Amy at the end of the year supports that conclusion, although Allison’s chosen levels on some desired outcomes are different from Amy’s chosen levels. What confirms their closer relationship is the explanation behind Allison’s choices, which leads me to believe the two were working in synchrony. For instance, on Desired Outcome 2, Allison rated Amy at a Level 3 and Amy rated herself at a Level 2, which meant that Allison believed Amy was not analyzing all types of test data available. Allison explained her choice, “I don’t think anybody really wants to acknowledge that their kids are doing poorly because of some skill they’re lacking.” Amy explained her choice too, “Yeah because I don’t think we were breaking that down and looking (at all the data)...because before [Allison] I don’t think we were looking.” Allison had concentrated on the “identify learning needs of professionals” part of the Outcome, while Amy had concentrated on the amount of data examined. Both were correct in their assessment; Amy was looking at more types of data because of Allison’s data meetings
and she was examining the data mainly for student benefit rather than her own.

Also, the difference between Allison’s and Amy’s Desired Outcome 4 rating can be explained by Amy’s misunderstanding of what the outcome was describing. The outcome outlines analyzing test data to change school and classroom improvement strategies. However, when Amy selected Level 2, she commented that she and her peer teacher and Allison had not met four times during the school year, so she could not be labeled a Level 1. Allison rated her as a Level 1 because she believed that Amy did analyze student test data continuously even though they had not met more than two times that year. She explained, “She goes with...every CBA for sure and then from time to time where I heard something at the data coach meeting, if I hear something good, I bring it to them.” As previously discussed, Amy had used data to plan at least four times that year when she met with her data coach twice and the instructional specialist twice to plan with data. So, although their ratings were different on their last IC Map, their relationship could still be categorized as strong, and therefore, the data coach could easily influence Amy’s decisions.

In addition, what also indicates a strong relationship is Amy’s willingness to try out curriculum suggestions by Allison. At the end of the year, Allison suggested to Amy that the 6th grade math team try out pre- and post-tests. Without knowing much information about these tests, Amy readily agreed. When talking about this discussion, Amy mentioned that pre- and post-tests were suggested by Allison:

But [Allison] came down and talked to me, and I think we are going to do pre- and post-tests next year. She asked me if I’d be willing to do that and I was like sure so we’re going to try that. We’re going to try it...it’s not going to hurt anything. So then that way, that’s another form of data that I have to look at is their pretests and posttests. Because what she said they were finding out is they were teaching stuff they already
really knew so why spend the time on what they don’t know instead of what they do know so I think that’s what we’re going to do.

Although Amy was not quite sure about how these pre- and post-tests would be developed or implemented, she was willing to try it out with Allison's help. Not only was Allison a data coach to Amy, but she was also a confidant, which potentially influenced her to try these new ideas next year.

In Allison and Amy’s case, the interviews indicated that the relationship between data coach and teacher was a positive, personal one. Such a relationship seemed to promote change in Amy’s use of the innovation and/or consideration of the innovation for next year. Amy’s three biggest changes to her instruction, according to her interviews, were the planned implementation of the pre- and post-tests, her concentration in class on problem solving strategies, and the revision of her warm-ups. Allison, and an instructional specialist directly influenced all three of these planned changes. As quoted above, Allison suggested to Amy that she implement pre- and post-tests. Because of a conversation between Amy and Allison, Amy decided to stress student use of problem solving strategies in her classroom. Allison elaborated on the conversation in her final interview:

We talked about this is the strategy I used to teach because three of the problems that were missed were protractors. She was like, we teach them to name the angle, whether it’s obtuse or yada yada and to write down the answer. It was very obvious...the kids who missed it didn’t use that strategy and we talked about the issue...all you can do is give them the strategy and enforce it during your teaching and your instruction days by not giving them credit if they don’t use the strategy.

Amy also discussed their conversation in her interview:

The third CBA, we didn’t get to give until after the TAKS test and so that let us know where we were still having trouble because there was one type of question in which we thought would be the easiest types of questions, but they missed. We were below 70 percent on every single one and it was on measuring and angle on a protractor.
I mean, it’s just, you know, I’m like, really. A lot of is they’re not using their strategies. You know we’ve taught them...identify the angles...that’s the very first thing you do. They know the types of angles, they know how to measure, but they won’t take the time to say hey, this is an acute angle, I can’t pick 110 degrees. Because what they’re doing is they’re getting the back of the scale because it has numbers on both sides and they’re picking the wrong numbers. So it’s not that they don’t know how to measure, it’s just if they would identify the angle first. So it’s just strategy. That’s the other thing is that they’re showing us some things…I mean the strategies that they have to use in order to be successful. That’s what we started really working on...pushing that strategy.

Both accounts of the same meeting indicate that Allison’s conversation had a direct effect on an instructional change by Amy, and that change was based on the data from the third CBA. However, Amy’s change was not her own idea; she instead relied on Allison to identify the problem and develop a solution. The same can be said of Amy’s warm-up changes.

Allison did not influence Amy’s warm-up change alone, a district instructional specialist also influenced Amy’s decision. Amy stated that this instructional specialist “stepped in as a data coach” while at her school. Amy talked about how she analyzed test data even when Allison was busy with TAKS,

So reading and math were going on for the 8th grade and she (Allison) was dealing with all that. She’s taught me enough to kind of go...to mess around with [the data management software] and put [the test data] in spreadsheets... and [the instructional specialist] was here, too and she helped me because she knew [the data management software] and kind of stepped in as data coach.

Amy also discussed how the instructional specialist used data in her meeting with Amy and her peer 6th grade teacher during their instructional planning time, “Because that’s when we were making our warm-ups and everything so yes, we pulled the data from previous things...from the benchmark...to see where we really need to still push. The data was pulled by [the instructional specialist].” And it was this same instructional specialist who gave Amy the idea of only doing two problem warm-ups, as Amy described in her last interview,
I was giving them like five problems and it was almost overwhelming. And [the instructional specialist] was like do half-sheets for some reason when the kids see half sheets it’s less stressful so we put a problem on the front and a problem on the back. They just seem to do so much better with it.

This instructional specialist influenced Amy’s warm-up plan, and her planned use of the innovation. Both the instructional specialist and Allison modeled the correct way to use the innovation. However, Amy still was not using the innovation on her own; she instead planned on future use of the innovation. Allison confirmed this conclusion in her final interview when she described why she rated Amy at Level 3 for Desired Outcome 2:

I think it’s hard, and again, with everything else that was going on with [Amy], she wasn’t thinking about improving herself; however, once she had her meltdown... and [the instructional specialist] was here, I think she recognized and could be classified as a 2. Close here to the end of the year more so than she was at the beginning of the year, but then again I think it all hinges on that personal mess and not knowing how to handle it.

Allison admitted the power of the instructional specialist in Amy’s use of the innovation. Both influenced Amy’s level of use by modeling the innovation for her. After Amy’s last data meeting with Allison, she decided to base the warm-ups on the incoming 6th grader’s 5th grade TAKS data, as quoted above. Her decision to use the innovation during the next school year was refined with the help of the instructional specialist acting as a data coach and her own campus data coach, Allison. This instructional plan was what moved Amy from a LoU 0 nonuse to a LoU I orientation.

In addition to her level of use, Amy’s stage of concern changed because of the interaction she had with her campus data coach and the instructional specialist. At the beginning of the school year, Amy’s Stage 0 awareness was her highest concern. Yet, by the end of the year, Stage 0 was one of her lowest stages. In addition, she moved from a negative split
between Stage 1 and Stage 2 to a positive split between the same stages. This change in Amy’s SoC can be explained by her interaction with both individuals. Amy learned more about using test data while planning TAKS remediation and warm-ups because of her interaction with the instructional specialist. Amy also heightened her awareness of the innovation during her meetings with Allison and their discussions concerning her students’ lack of use of strategies and the refinement of her warm-ups plan. By the end of the year, Amy had seen first-hand how to use data to change instruction for current student remediation and to meet future students’ needs. As a result, Amy’s data coach, or someone “stepping in” as a data coach, directly affected Amy’s level of use and stages of concern over the span of one school year, suggesting that Amy was on low levels in both measures, with potential to change in the future.In School A, the phenomenon of the influence of the data coach on the teachers’ use of test data to change instruction can be understood as the metaphor of a waffle maker. With Amy as the batter, the data coach and instructional specialist applied the heat and pressure that made her into a waffle, regardless of her own choice. There was so much pressure in Amy’s life at home and at work, she had no choice but to succumb and begin to consider data-based decision making as an option.

School B

Data Coach B, Beatrice

Beatrice lived in the northern United States until she was in middle school, when she moved to the South. She had originally wanted to pursue a degree in marketing but found that she enjoyed working with children more than adults. After receiving her bachelor’s degree in
social studies, Beatrice served her first few years of teaching as an 8th grade U.S. history teacher. When her middle school downsized, she became a 6th grade social studies teacher in order to stay. However, by the end of six years, Beatrice was ready to move out of the classroom and into more of a leadership role.

Before her second child, Beatrice began searching for administrative roles outside of the classroom. She applied to be an instructional technologist on her campus, but when she found out she was pregnant, she turned down the job. However, when she returned from maternity leave to a group of undisciplined students, she began to search for other options. The substitute had been in charge of her class for eight weeks and was not much on discipline:

The sub I had this last year, I wasn’t able to come in and meet the kids, so they had no idea who I was, and this sub...she was very motherly...and now we have this late-work policy, and she wouldn’t follow the late-work policy and she was just like oh, okay, well if you turn it in by the end of the 6 weeks, it’s okay... So I came in and it was a complete culture shock for those kids.

That school year was difficult for Beatrice, so when, at the beginning of the next year, the new data coach went on maternity leave and Beatrice applied for the job.

So when I heard that [the old data coach] was getting ready to go on bed rest and those kids that first...they were terrible, so I was like anything to get me out of there... I said if you need anyone to fill her place while she’s gone, I’d be more than happy to do it. Yeah, she was leaving on bed rest the first week of November and was not going to be back until after TAKS season, so they needed someone in this position to help and I said I would be more than happy to do it.

The principal and the assistant principal saw Beatrice as a good fit and hired her to start in November. Beatrice elaborated on why they chose her, “My assistant principal...since she knew we’d be working on the TAKS stuff together, she knew that we’d work well together and if I don’t know something, she knew that I would ask.” However, Beatrice was most looking forward to the test coordinating side of the job. She was not aware of the other aspects of the
job description such as data meetings and classroom walk-throughs. Beatrice explained,

After I had gone to data coach meetings...I did not realize that was going to be part of the job and I’m not sure anybody knew that was going to be part of the job. So that was overwhelming to me, because I was like “Whoa! How are we supposed to fit that in?”...and truth be told, I don’t have time to fit all those walk-throughs in. Right now I’m ordering planners for the entire school. I’m doing, like, master schedules.

Beatrice wanted to be a data coach because she enjoyed coordinating tests, “I think it’s like a jigsaw puzzle,” therefore, the data meetings and walk-throughs were secondary to her. As a result, Beatrice focused only on meeting with the 6th grade math team. She explained that science meetings were being led by an instructional specialist who came on campus once a week. Also, she had decided not to meet with English teachers or history teachers because their scores had been so high on the TAKS test.

In the end, Beatrice was mostly focused on other parts of her job, and even added duties not typical of a data coach, but more typical of a counselor (See appendix F). Beatrice assisted the campus administration in creating and organizing the master schedule, creating and revising student schedules, and she met with students individually to discuss schedules and testing goals. She helped identify students who qualified for special education services and 504 modifications, and then organized, managed, and trained educators for RTI (response to intervention) meetings. Such duties are typically completed by the counselors on a campus; however, Beatrice added them to her own job description (see Appendix F). She described herself as a “forensic investigator” for the district. She had identified several students who were not receiving the correct modifications because of being mislabeled when they enrolled at her campus. Such investigations, though integral to the campus’s legal status, took time away from data conversations with teachers.
Beatrice centered her data conversations about past tests on the basic item analysis report. However, she also helped teachers prepare for the upcoming CBA by giving them reports based on last year’s problem questions. Teachers could then see problems their students had last year, and better prepare their current students for the upcoming test. She explained,

We also looked at the second CBA after we looked at the first CBA, we looked at the percent from last year, and we looked at the percentages that the students marked down answers the last time so they could see certain problems. I think we picked out about five questions of where the students did not do very well, and they had a majority of people picked the wrong answer. They were to go back and set some goals for those questions on how to get the students to do correctly this year.

Because Beatrice knew most of her time would be spent with other duties besides data conversations, she planned ahead by teaching the 6th grade math team how to analyze data and collaborate concerning lesson plans in the beginning, so that they could continue data analysis themselves when she was not able to be around. She stated,

The first couple of six weeks we tried to get them to understand and how to get the data, and what to look for in the data so when they have their meetings they can figure that out for themselves and not necessarily have me guiding them to where they needed to go.

Beatrice knew that the majority of her time as a data coach would be spent as a “forensic investigator” and organizing tests, so she tried to prepare the teachers to have the data conversations without her.

In regard to her relationship with teachers, Beatrice found she had different relationships with certain teachers, depending mostly on their time teaching on her campus:

You know, it’s funny. Since I’ve been here for so long, and I know so many of the teachers, with them we still have the very peer-like relationship. They come to me. I can go to them. The people that have been hired this year, that have never seen me in
the classroom... It’s a different relationship. They see me with the administrators a lot of the time so they treat me...they see me as more in that type of role.

Beatrice admitted that her interactions with teachers were mostly concerning scheduling or testing, which are typical counselor or administrator roles. Only in one instance did she discuss data conversations with teachers, and that was with the 6th grade math team. Her focus was on other duties besides data analysis with teachers and that really was her passion. At the end of the last interview, when I asked Beatrice what she would be doing in the future, she answered,

I think I’ll go into counseling, helping the teachers; I want to be able to talk to the kids. I don’t get to talk to them much right now. Hopefully, as a counselor I could have more positive interactions with the kids.

Although Beatrice enjoyed many of the aspects of being a data coach, her true passion was organizing tests and talking with students.

Teacher B, Becky

Over the span of a year, Becky’s SoCQ indicated her concerns shifted from a high management concerns to personal concerns (see Figure 4.2). Her LoU moved from a Level III mechanical use to a Level IVB refinement and her IC map placement confirmed growth in depth of data analysis as well. Becky’s growth in her use of the innovation was supported in three interviews recorded throughout the school year.
Beginning of the Year

Becky’s SoCQ profile was assessed at the beginning, middle, and end of the school year. Her first profile was what George, Hall, and Stiegelbauer (2006) call a “typical single-peak user profile” with her peak stage at Stage 3, management, indicating her biggest concerns about using test data to change instruction were time management and efficiency (see Figure 4.2). Becky’s profile shows that she is indeed a user. Becky was aware of the innovation and felt like she knew enough about it to try to implement the innovation. Her Stage 2, personal, and Stage 5, collaboration, both were second highest on her profile, illustrating Becky’s personal concerns about how the innovation will affect her and her concerns about working with others, which can be tied in with her worries about managing the innovation in her classroom. A higher Stage 2 and 5 for Becky made sense because of her mandated daily planning period and pre- and
post-tests. As scheduled, Becky’s daily activities included collaboration with her peers and regular introspection about her own teaching.

Becky’s level of use and initial interview were not recorded because of technical difficulties and a novice researcher. However, I took notes after the interview, which seem to support her highest stage of concern, management:

She seemed to like where she was, but did not like how she did not have time to get organized. I commented on the student projects piled up in the corner. She said that it was driving her crazy not to be able to get things together. She talked of priorities, and that getting organized was going to have to get put on the back burner until she had more time. I felt that she was doing well at handling her load, and that most of what she was doing was intentional and based on what data she saw in the meetings with the data coach.

As a new teacher, Becky’s most pressing concern was organization and management in both her classroom practice and use of the innovation. Because of these recorded concerns, it can be concluded, without record of Becky’s initial LoU interview, that she was at Level III, mechanical use at the beginning of the year (see Table 4.3).

Table 4.3

Becky’s Level of Use

<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge</th>
<th>Acquiring Information</th>
<th>Sharing</th>
<th>Assessing</th>
<th>Planning</th>
<th>Status Reporting</th>
<th>Performing</th>
<th>Overall LoU</th>
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<tr>
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<td>O</td>
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<tr>
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<td>II</td>
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<tr>
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<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
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<tr>
<td>Routine</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
<td>IVA</td>
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<td>IVA</td>
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<tr>
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<tr>
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<tr>
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Note:  
- Beginning of Year
- End of Year
Not only did her school environment provide the structure for her to use the innovation through pre- and post-testing, team planning time, and extra hour of instruction dedicated mainly to remediation, but the other teachers’ use of the innovation seemed to encourage her use as well. In most of her comments in the second interview about using data to change instruction, Becky used the pronoun “we” along with “I,” which emphasized the importance of the influence her team has on Becky’s use of the innovation.

Um, so when we scan in the pre-test data, you know, we kind of look at that and then I’ll look through the pre-tests and see if there’s anything I see that they’re consistently getting...I already know that we don’t have to hit on quite as much.

She also discussed how she used the post-tests and CBA data to gauge her students’ progress in comparison to the other three 6th grade teachers:

…and then when we give the post-tests or the assessment at the end of the topic or whatever we’re doing, um, we, or I look at mostly the data in [the district data management software] from when we scan it, um, again, looking at my kids and then my summary and comparing that to everybody else, and seeing where they stand.

Because of these early comments and notes, it can be concluded that she was using the innovation at the beginning of the year. Previous quotes, about the initial interview, however, suggest that although she was using the innovation, she was still worried about managing her time and materials. This information, along with Becky’s novice teaching status, puts her at LoU III, which Hall, Dirksen and George (2006) describe as a level where the person is “using survival tactics and is almost overwhelmed by the task of actively implementing the innovation” (p. 13).

Her completion of the IC map indicates use of the innovation as well. As mentioned previously, Becky’s minimum placement for Desired Outcomes 1, 2, and 3 should be at least at a Level 3 based on district and campus policies for data meetings. Becky rated herself at a Level 3 for both Outcomes 1 and 3, but at a Level 2 for Outcome 2, showing that she looked at all
types of data to determine learning needs of professionals instead of just CBA or TAKS data (see Table 4.4).

Table 4.4

**School B - Innovation Configuration Map**

<table>
<thead>
<tr>
<th></th>
<th>D.O.1</th>
<th>D.O.2</th>
<th>D.O.3</th>
<th>D.O.4</th>
<th>D.O.5</th>
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<td>Level 1</td>
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<tr>
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<td>Level 3</td>
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<tr>
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<tr>
<td>Becky (Teacher)</td>
<td>Level 3</td>
<td>Level 1</td>
<td>Level 3</td>
<td>Level 1</td>
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</tr>
<tr>
<td>Beatrice (DC)</td>
<td>Level 3</td>
<td>Level 2</td>
<td>Level 3</td>
<td>Level 1</td>
<td>Level 1</td>
</tr>
</tbody>
</table>

*Note: DC - data coach, NA - Not Assessed, D.O. - Desired Outcome, BOY - Beginning of Year, MOY - Middle of Year, EOY - End of Year

She also rated herself on Level 1 for Desired Outcome 4 and 5, illustrating her use of test data continuously to monitor improvements and to re-teach as necessary. Becky’s ratings are indicative of a school environment that enables teachers to schedule time for analyzing data and planning together. Because she meets at least once a week with her team and creates pre- and post-tests and analyzes subsequent data, Becky’s ratings on the IC map are high.

**Middle of the School Year**

Becky’s second or mid-year profile is similar to her initial profile, with her peak score at Stage 3, management, with a percentile score of 94%. However, this profile had a tie for second highest with Stage 1 and Stage 2 both at 91% (see Table 4.3). Becky’s main concern in the implementation of this innovation is still time management, but she has become more worried about finding out information about the innovation and how implementing the innovation will
directly affect her personally. This change can be explained by a data meeting, which had been held a few weeks before the mid-year SoCQ administration. In this meeting, Becky’s team as a whole had scored low on the second CBA. The principal had been a part of the meeting, and Becky described the meeting as stressful:

So that was real frustrating because it looked like [the students] didn’t know how to do it, that particular standard. So then, um, our particular program with the way that we’re supposed to be switching classes and everything, um, it’s become very stressful on the teachers, us four teachers, what we’re doing and what we’re supposed to be doing, it just kind of all came together.

In addition, by the end of the meeting, Becky had decided that she was not completely on board with all of the team members, and therefore began to wonder how to juggle collaboration and autonomy:

It was more of the fact that I am still learning how I feel about how I think teaching should go. In that meeting, I kind of really realized that some of my views on things are different than other people and just figuring out how to do it and still meet expectations.

The meeting and Becky’s questions concerning her peers’ differing opinions explain the change in Becky’s Stages 5 and 6 from the first profile to her second profile. Her first profile indicates a higher Stage 5, collaboration, than Stage 6, refocusing, but her second and third profile indicates the opposite. Her second profile shows her Stage 5 at 68% and her Stage 6 at 77%. Her final profile shows her Stage 5 at 55% and her Stage 6 at 73%. This change from the initial profile to the second profile illustrates a shift in her concerns. After this stressful meeting, she became less concerned with the collaboration part of the innovation and more concerned with how she could change the innovation to fit her needs.

Becky’s mid-year IC map placement shows that she was still using the innovation but was unclear to what degree she was completing the tasks. For Desired Outcome 1, she
indicated that she was only at a Level 4 instead of a Level 3 as initially indicated. She changed her Desired Outcome 3 level from level 3 to level 4 as well. These changes can be explained in one of two ways: either she was no longer meeting with her grade level or content area or Becky was not truly taking the time to properly fill out the IC map. This mid-year interview occurred right before the 6th graders took their math TAKS test. When asked if she was discussing the innovation with others, Becky said, “Um..let me think. My brain is so fried.” She then stated the following:

In our meetings, with the 6th grade math teachers, we talk about what the kids are low in. Recently, we gave the 2009 TAKS test as the benchmark for them, and we had them take it again this past Friday, and we got to see who made gains, who stayed the same, and of course, there were some that dropped their scores, dropped instead of at least staying the same, so we discussed how we should use that in our classroom, but that’s basically about it.

Becky was still meeting with her team. This conversation between researcher and participant, which had to take place while someone covered Becky’s class, led me to the conclusion that Becky simply did not take the time to completely read all the options on the IC Map. All other data point to growth in Becky’s use of the innovation, so the backsliding on the mid-year IC map placement can only be credited to an exhausted participant.

End of the School Year

Becky’s final stages of concern profile indicates that she had become more comfortable with managing the innovation in her classroom. At the end of the school year, her previously highest Stage 3 management, was lower than Stages 2, personal and 1, information. Her SoCQ indicates that Becky had begun to concern herself more with personal issues regarding the innovation, along with wanting to know more about using test data to change instruction.
However, she never expressed any worries or concerns about her own progress in her interviews; instead she consistently described herself as on a “learning curve,” which hints at her own realization that she still needed to learn more about the innovation before she would be comfortable. In April she expressed a desire to learn more about how to change instruction after analyzing data:

I would like to have training on…I know how to look at the data, and what the data means, but to have an expert to tell me exactly what to look for, and then how to use it, like teaching strategies for the specific areas...

Becky had become so much more comfortable with managing the innovation that she wanted to know more about using the innovation to increase her success in the classroom.

Becky’s SoCQ also shows her Stage 5 collaboration concerns are lower than mid-year. In her last interview, she talked about how she used data from pre-tests to change her instruction for the upcoming unit. It is important to note her switch of pronouns from “we” at the beginning of the year, to “I” at the end of the year:

I really used it to kind of judge what the kids already knew, and what they didn’t know, and it kind of told me if there was something that...like especially my pre-AP class...if there was something that they had retained and they knew they all got it right, then I knew that that was a specific topic that I didn’t have to hit as hard on. That’s basically, the main... only way I know how to use it at this point, so beyond that is something that I would like to learn more of.

Becky’s confidence in herself as a teacher and her newfound ability to manage her classroom allowed her to rely less on others and more on herself. As a result, the focus of her last interview was about how she handled the innovation, and not how she and her team managed the innovation like at the beginning of the year.

Becky’s final LoU not only identifies her as a user, as concluded at the beginning of the year, but suggests that over the period of the school year she had moved up to an overall LoU
of IVB refinement (see Table 4.3). First, Becky’s description of how she remediated student weaknesses illustrates that she had immersed herself in the innovation:

Well, we do test corrections, but I would say that I re-teach when it’s necessary um, like, most recently we were teaching circles, like circumference and stuff like that, I was giving a quiz like every day to monitor their understanding and the first quiz was awful so I went back the next day and had to kind of re-explain, re-teach, say it in a different way and use different types of things.

Becky was truly changing her instruction based on what the test data indicated. In addition to her deep knowledge of the design of the innovation, Becky had decided to change the type of data she was getting from her pre- and post-tests in order to better assess student knowledge. She also had decided what data were better indicators of students’ future TAKS performance and began to value released TAKS data over the district CBA data. In her second interview, she mentioned that she was not using the pre- and post-test data as much as she was at the beginning of the year: “I was just kind of looking at their overall score on that test and whether they needed to be…whether I needed to go back and re-teach some of that information when I handed the tests back.” Also, she began to doubt the validity of the CBAs, and therefore did not use the data from those tests either. In her final interview, she explained,

Because the CBA questions are like, nothing like the questions that…well, they’re, I don’t know…I think they are harder because they are definitely harder than the questions that they have on the tests in class, and I think they’re harder than the TAKS. Because our kids did so much better on the TAKS than they did on any of the CBAs.

In the end, she valued the released TAKS test data over the CBA data, and talked of revising her pre- and post-tests to better gauge student performance. In her final interview, Becky talked about the changes she planned to make with the data she gets from pre-tests:

…it’s not been beneficial for them, in my opinion and most of the others, for them to have multiple choice after multiple choice…it is good that that’s how it is on the TAKS
and they can get practiced doing multiple choice, but I just don’t want them to rely on guessing.

So Becky’s overall feeling was that the innovation of using TAKS test data to change instruction was working, but that she needed to make some changes in order to be more successful. She exhibited a positive attitude toward using pre- and post-test data, but felt a need to make changes:

So we were still able to see some growth, but I think, using the pre- and post-test was good, but if we’re going to do it again next year then we need to make some adjustments.

Becky expressed her desire to change the innovation, her use of test data to change instruction, to increase student performance. Hall, Dirksen, and George (2006) say that in order to be refining her use of an innovation, the individual must be “actively planning for a change, be in the process of changing, or be in the process of evaluating a change with respect to use of the innovation” (p. 14). Becky’s evaluation of the innovation and her plans for change put her at a Level IVB refinement.

Becky’s final IC map placement also indicates a change in her use of the innovation. Although still at Level 3 for Desired Outcome 1 indicating she was not analyzing test data for the entire school, she placed herself at Level 1 for Desired Outcome 2, indicating that she was looking at all types of data to determine professional learning needs. When asked about why she found herself at a level where she “ensures that data are disaggregated by gender, SES, ethnicity, etc,” Becky reflected at how her attitude has changed over the school year:

I realized how important different groups are that I didn’t know at the beginning of the year. This school is completely different than any school I was ever in. I’ve gotten more training during the year, and realized how I have to change my teaching to make sure I reach them.
Becky’s movement toward using “more detailed data to change instruction” was due to her use of the innovation over time. She found that she needed to meet all groups’ needs in order to note improved student performance. She began to pay more attention to these groups as time went on. The rest of the IC map outcomes do not indicate a change. Becky explains that any future movement in these outcomes might happen when the school implements a new grant next year, called the D.A.T.E. grant. The requirements of the grant may create avenues where movement on the IC map may be possible for her and other teachers as well. She postulates,

Um, like, well, I guess, to do it with the whole school, for instance, if it was with math, then we would need all of the math teachers to come together and write what would be required. So I mean, that might be one thing that would be good for the D.A.T.E. Grant or something like that.

Although her IC map does not show much change in her fidelity to the innovation, Becky’s use of specific data to change instruction and her constant evaluation of her own success as a teacher make her a user of the innovation who has moved toward a more refined use of the innovation.

Although a novice teacher, Becky started the year using the innovation at a mechanical use LoU. Throughout the year, she used the innovation and found ways to change it to work better for her and her students. Her movement to LoU Level IVB refinement shows that she was committed the innovation, and thinks that other strategies can work as well, if not better.

Data Coach, Beatrice, and Teacher, Becky, Relationship

Data Coach B, Beatrice, did not have much of a relationship with Becky because of Becky’s quiet nature, “This is her first year teaching here so she typically lets the other teachers give input unless she’s specifically asked a question.” However, Beatrice not only met with the
teachers twice in the fall semester concerning CBAs, she also met with them several times at
the beginning of the year to help them work collaboratively toward differentiating instruction.
Her goal was to help them learn to become a working professional learning community, so she
modeled what was expected of them in these meetings at least twice a week for the first few
weeks. Thus, Beatrice was able to correctly place Becky on the IC map at the beginning of the
school year. The levels she chose were the exact levels Becky chose for her own initial IC map
placement. However, Beatrice said she could not comment on Becky’s Desired Outcome 2
because they had not talked about what Becky looked for in terms of professional
development.

Once the spring semester started, however, Beatrice became less in tune with Becky’s
progress and instead relied on her own relationships with other teachers to keep track of
Becky. After admitting that she had not talked to Becky since the fall semester, Beatrice talked
about what she thought Becky was doing with the innovation, “Um, from talking to the
teachers, in general, I know they've tried to make their second hour lessons, um, re-teach
things that they missed on the CBA.” Because Beatrice had not spoken with Becky since their
first semester meetings, relied on conversations she had with Becky’s fellow teachers in order
to gauge Becky’s progress. When she was asked to portray Becky’s placement on the IC map in
the spring, Beatrice’s indicators differed from Becky’s considerably. Beatrice placed Becky at
Level 2 in Desired Outcome 1, while Becky had placed herself at Level 4. Beatrice explained her
choice:

I know how they break down the classroom, or how they break down the CBA and it's
not necessarily TAKS, um, she, they...I think they, as a group, try to find out what the
students need and then they try to use that second hour to help with that, and then the
tutoring after school to help reinforce what they're missing.
Beatrice’s conclusion was based on what she thought “they,” or the entire group of 6th grade teachers, were doing in regard to analyzing disaggregated student test data.

Another example of Beatrice’s misconceptions is her placement of Becky on Desired Outcome 2. Beatrice placed Becky at a Level 2 “because I don’t know if she’s breaking it down by gender, SES, and ethnicity” (see Table 4.4). However, Becky rated herself at a Level 1 specifically because, as quoted earlier, she had learned more about her ESL population and what she needed to do to meet their needs. Because Beatrice had not talked to Becky since early in the school year, her knowledge of Becky’s actions in her classroom was unclear.

Because of her assumptions about what the 6th grade math team was doing, Beatrice failed to understand Becky’s use of pre- and post-tests. In her final interview, when Beatrice was asked why she thought the 6th grade team had such a high student performance rate as compared to last year, she hypothesized, “So [the 6th grade math team] used the data for that next unit until the post-test data came. They pre-tested and post-tested them, which gave them good data to help them create their lessons for the second hour.” At Becky’s second interview, Beatrice’s assumption that Becky used post-tests and CBAs to plan was true. As mentioned above, Becky was using both tests to change instruction.

However, by April, Beatrice’s concept of what the 6th grade teachers were doing with the data was a little more positive than what Becky portrayed in her third and fourth interviews. When Becky was asked what she had been using to plan her units she replied “Until recently we were still doing the pre and post for those, but I wasn’t really looking at those. I had gotten to where I wasn’t really paying attention to that data.” In her fourth interview,
when I asked if she had used the pre- and post-test data to make instructional decisions, Becky replied,

    We had intentions to, but it ended up not necessarily being that way...I mean, this year was such a learning experience for all four six grade math teachers so next year, I think, we will know our way better and can use it.

Beatrice’s idea of why the students were successful was in direct contrast to Becky’s discussion about the pre- and post-tests. In fact, Becky admitted that she thought the pre- and post-tests were helpful in theory, but she thought the team would need to make changes to the process behind reading that pre- and post-test data to improve its use:

    If we knew...had a list of things that we needed to look for and could go through and say okay my students did this on this and put up a pre-test, but none of them got...just kind of an outline how to use the pre-test data to make sure we’re able to use it in the right way.

Although both Becky and Beatrice agreed about the value of the pre- and post-tests, Becky had not been using them as regularly as Beatrice assumed. Such inaccuracies between Beatrice’s assumptions and Becky’s reality led to the assumption that the relationship between data coach and teacher at School B was not integral to Becky’s growth in her use of and concerns about the innovation.

    Becky’s level of use of the innovation grew from an initial assumed Level of Use III Management to a LoU IVB Refinement over the period of one school year. Beatrice helped support Becky’s use of the innovation with her meetings in the fall semester. Becky described Beatrice’s influence when asked if she missed meetings with her data coach:

    At the beginning of the year, we kind of complained having to meet with her so much, but now we don’t do it at all. I kind of wish we did have time to do it here and there. Just so we could still get that TEK breakdown...um, keep in touch with the data as a group instead of just looking at it on my own. So that was really good to have that.
Becky thought the meetings with Beatrice were valuable when they were able to have them. Such meetings allowed Becky to see how the innovation worked. Beatrice was able to break down the data in familiar terms, walk the teachers through the data and guide discussions about the data. Beatrice’s involvement with Becky and her team in the fall semester definitely helped Becky stay at the management level.

However, what may have had more influence on Becky’s use of the innovation was the involvement of Becky’s principal, rather than the data coach, in not only the use of the innovation, but her scheduling of the blocked math classes. Becky elaborated on her principal’s attendance during the second CBA meeting:

The beginning of the year [the principal] was in, um, several of our meetings that we had. Because she’s real...I mean the 6th grade having four teachers and it being blocked, it was kind of her thing. So she was paying close attention and then we came in here and had the meeting for the second CBA and you know the kids...it’s not that they did bad, but you know those things are crazy hard and um, just got into discussions about things that could be done differently and all that stuff.

The teachers knew that the blocked schedule was their principal’s creation and that the principal was passionate about the program’s success. Her presence during meetings was one way Becky’s principal stressed the importance of the blocked program. However, her influence carried over into data meetings even when she was not present, because Beatrice was scheduling and organizing meetings based on the principal’s wishes. As Beatrice explained her meetings with the 6th grade math team, the meeting organization and ideas seemed mostly to be focused on the wishes of the principal. She first described her plan to get the team working together at the beginning of the year:

So with the 6th grade math, we probably met twice a week for the first two six weeks trying to organize how they were doing their work in that second hour. So with math, we’re still...you can see my little math centers over there. We’re trying to get them to
use centers also in that second hour...and I don’t...they’re not understanding how our principal wants them to use centers so like, tomorrow we have a meeting with them all to show them what kind of centers we have available and it doesn’t take a lot of time to set them up, and it’s something really easy that the kids can do and rotate through.

Becky’s principal wanted the team to use centers, and Beatrice facilitated the meeting to help the teachers better understand what their principal wanted. In addition, Beatrice also described how she presented the data to the team:

> With our 6th grade math, since I’ve been doing it so frequently with them I do split it down by teacher individually and then we look at specific TEKS for each teacher and overall to see what the comparison is and if they’re doing it the same way; and the reason we do it individually is because our principal wants the teacher that has the high SE, they’re doing something different than the other ones.

Once again, Beatrice organized and presented the test data based on the principal’s wishes. As a result, the teachers used the innovation based mostly on the principal’s interpretation of the design of the innovation. Because of the principal’s commitment to the block schedule use of support for needy students, during the fall semester, Becky and her team used test data to change instruction. Even though she had fallen off in her use of the pre- and post-test data to plan toward the end of the year, Becky’s early use of it allowed her to assess her own use of the and make plans to refine the innovation to increase student success.

Becky’s stage of concern, however, was mostly influenced by the stressful meeting she had concerning CBA 2, which was scheduled by Beatrice. Beatrice’s initial comments about the meeting were minimal, “[The 6th grade team]’s last meeting was...um, emotional to say the least...because their CBA scores were so low. But [Becky] didn’t say anything in it.” Also, when asked who led the CBA 2 meeting in January, Becky responded, “um, [Beatrice], but the data and everything led it, and you know at every point there were people and we would go back and forth.” Later on in the semester, Beatrice enlightened me on the details of that meeting,
which Becky never explained. According to Beatrice, the whole team had to rethink how they were approaching the block program and their own classrooms because the teacher the team respected the least, Beth, had scored the highest on CBA 2. Beatrice explained,

Well, on the last CBA, the lowest person ended up being the highest overall, and she was very...[Beth] didn’t want to be recognized for it, and I probably over killed it on how awesome where her scores were and how great her scores were and that we needed to see what was going on in her classroom. She has kids taking TAKS M in her class and these kids were scoring 70s and 80s on the CBA. And there were other classrooms where they weren’t scoring that high.

Their personalities are so interesting in that group because she is very forceful and abrupt, that’s her personality; and then we have the team leader who is...she knows everything because she’s been doing it for so long; and then there’s a new teacher that doesn’t talk at all; and then we have this teacher that has all these great ideas, but she doesn’t implement them. And since it’s [Beth’s] first year teaching this, they had a really hard time accepting all of the things she was doing in her room and talking to her and she was probably really hard to work with, and so our last meeting did not go as well as they previously had.

Once they left here, I knew they were upset so the next day I spoke to them individually. I said [Beth]’s scores did go up. It’s impressive how much they went up and we need to celebrate, because it’s not just her. Y’all have to remember, y’all are trading them around that second hour.

The quote above illustrates how Becky’s personal and informational concerns could have risen after this meeting. After CBA 2, Becky realized that her collaboration with others was not as important as her own success in her classroom. Becky agreed when she described one of the effects of the meeting, as quoted previously, “In that meeting, I kind of really realized that some of my views on things are different than other people and just figuring out how to do it and still meet expectations.” Thus, Becky became more concerned with properly using test data to change instruction in order to best benefit her own students, and she became less worried about collaborating with others. Therefore, this meeting added to Becky’s personal concerns
about the innovation, and her Stage 1 Information and Stage 2 Personal increased as the school year progressed.

At School B, the phenomenon of the data coach’s influence on the teacher to use data-based decision making was viewed differently from everyone involved. The data coach felt as if her role was important to the team of math teachers, but Becky did not feel like Beatrice was an integral part of the data process, although she enjoyed having Beatrice around to help. Judging by Beatrice’s explanations of the math team’s successes, I understood data to be an important part of the team’s everyday activities. However, Becky claimed otherwise in interviews. It was not until after all data had been collected and analyzed that I realized Beatrice’s presence was only important at the beginning of the year. After she helped the teachers get started, she could step away and let the team lead themselves.

School C

Data Coach C, Cynda

Cynda moved frequently because of her father’s corporate ambitions. She ended up in Texas for college, and studied several majors before landing on education. She loved helping adults and children, and at first had intentions of becoming a child life specialist, someone who would act as a coach to children who were having procedures done in hospitals. However, she instead pursued a degree in special education, and was hired as a middle school special education teacher, and within months, she had been promoted to the department chair. When I asked why she thought she had been promoted so quickly, Cynda explained,

I had come out of a position where I managed others. And you know... I am a pleaser. I am not confrontational. I want everyone to be happy. Now, I want to get to the end
result, but I wanted to do it in a positive way. I had been managing older people in a positive way. I was coming with good recommendations and I proved myself quickly.

Cynda stayed in her position for five years. She participated in several leadership roles during this time as well, including the building leadership team, facilitating ARDs, and even helping the assistant principal in charge of testing for two years. After she had her first child, however, she decided to stay at home.

After eight years of being a stay-at-home mother, it was not a difficult transition for Cynda to return to work. She had begun thinking about going back when a friend of her husband’s recruited her as a special education teacher. After debating for a while, Cynda applied for the position. However, when the interview came, the job was not what Cynda had anticipated, and she turned the job down. Two weeks later, a family friend called and offered Cynda the data coach position at his school, and Cynda readily accepted. She recollected why she accepted the job:

I just found this position to be so exciting. Really, in reality, this position encompassed for me more of what I had always loved to do, which was manage adults and work with kids. I’m totally a numbers person. I taught resource math and I was an accounting major. I’d been out for eight years. The thought of going right back into the classroom and doing the same thing I had done wasn’t really thrilling for me because I felt like I wanted to be in a different place. If I had continued to work during those eight years, I felt like I would be in a different job than just teaching.

In her first year on campus, Cynda’s relationships with teachers were minimal. She described how she hoped teachers viewed her position,

I hope they perceive me as someone who makes their jobs easier and someone who is accessible and someone with an attitude to help them and that I can be counted on and trusted to the best I can immediately for them.

However, she did not want to be viewed as an administrator by teachers. She thought administrators were mostly viewed as threatening, and data coaches should be considered by
teachers as a peer. She stated,

I don’t want to be seen as an administrator position at all. Because I think it changes the
dynamic of the relationship, and if they start seeing me as someone above them, it
makes them feel uncomfortable in talking and confiding with me.

Therefore, to Cynda, relationships with teachers were integral to her job, and Cynda wanted to
do the job to the best of her ability. Although she found the job description demanding, Cynda
tried to excel at all facets of the job. During her interview, she read aloud her job description,
which, she admitted, seemed daunting:

Data collaborations with teachers and team, which is obviously a huge part of what we
do. I’m in charge of the INOVA mentorship, testing security, mentoring students,
organizing and distributing data reports because that kind of goes in with the data
collaboration, TAKS training for staff, TAKS Alt., TELPAS testing coordinator, testing
rosters and assignments, Title 1, Title 1 tutoring, TAKS tutoring, TAKS talks, Title 1 data
forms and tracking, and then numerous other things that have been added on as we’ve
gone along. And really, I couldn’t figure out in my head how I was going to do like other
campuses are able to do because their Special Ed is smaller, they don’t have TELPAS
going on, and a lot of these campuses they probably don’t even have TAKS Alt.

Eventually, though, she began to find her own way of making everything work on her campus.

She found that “it’s not necessarily trying to incorporate everything all those other campuses
are doing, it’s figuring out what serves me best and how I can serve my teachers, students, and
admin in an effective way.”

During data conversations, Cynda mainly supplied teachers with a breakdown of student
expectations on tests. She also provided individual item analysis reports, along with
comparisons to other teachers and district scores. However, she only had two data
conversations with the math department on her campus before the spring semester began and,
she became more involved with test coordination. Cynda expressed her discontent with the
way her test coordinator duties were prioritized higher than her data conversations. In her
description of the ideal data coach, Cynda confessed, “I would have no testing coordinator
duties because that really, especially second semester, that’s really going to take away from
what I’m just now starting to establish.”

Because of her test coordinator duties, Cynda had to let some things go in order to best
serve everyone; her solution was less collaborative meetings with teachers and more of the
“numerous other things” for which she was responsible. Her decision directly affected her
relationship with Christy and ultimately, Christy’s relationship with the innovation.

Teacher C, Christy

As part of the 7th grade math team, Christy identified herself as a novice user of the
innovation. Christy’s concern profiles and LoU tell a different story. Christy’s profiles follow the
“typical nonuser profile” with her peak stage as Stage 2, information, during the first
assessment, then moving to Stage 3, personal, for the second and third assessment (see Figure
4.3). Christy’s levels of use interviews show that by the end of the year, she was prepared to
use the innovation during the following school year, which put her at an overall LoU II,
preparation.

Beginning of the School Year

Christy’s initial SoCQ profile reflects a nonuser who is most interested in information
about the innovation and is concerned about how implementing the innovation will directly
affect her. Her profile exhibits an initial “positive one-two split,” where her Stage 1 is lower
than her Stage 2 concerns. At the time of this first assessment, Christy was positive about the
innovation and wanted to learn more about it. In her initial interview, when asked if she was using the innovation, she states, “I want to say yes because I see what I should have done, or focused on more, or done differently.” Christy’s desire to at least appear to be using the innovation shows her curiosity about using data to change instruction, but also shows that she is currently not a user.

![Teacher C - Christy's Stages of Concern](image)

**Figure 4.3.** Teacher C-Christy’s stages of concern.

When asked if she was using the innovation, Christy answered, “Here’s the deal, I don’t know how to answer that because I’ve only seen the results of one CBA test. And it’s after I’ve already taught it. So what am I supposed to be changing if I’ve already taught and moved on?”

At the beginning of the school year, Christy’s confusion about what exactly the innovation entails was evident. Also, she discussed how she felt about analyzing data during her first meeting with the data coach,

I went through the motions the first time of what they’re telling me to do but it was hard to describe...to come to grasp it... well I get what I’m doing at least...I feel like it’s going to be very useful, well maybe not this year.
The quotes above illustrate Christy’s confusion concerning the innovation, how to implement it and how to guarantee the success of her students. As a result, her confusion about the innovation as a whole is reflected in the results of her SoCQ profile.

Christy’s level of use interview also confirms her nonuse of the innovation. At an overall LoU II preparation, Christy has decided that she will be using the innovation as defined at the beginning of the next school year. She explains in her initial interview that she makes notes about what to change in her lesson plans for the next year based on summative test data:

I’ll note, okay, I didn’t really teach that kind of a question or I must not have taught this type of topic well enough, or I need to teach it differently or something...I haven’t figured out, like, how I’m going to fix it, but I know which things need the fixing so that when it comes up next year, I’ll be like, okay, I know that they didn’t get this.

Although Christy does not quite understand the complete definition of the innovation and how to use it, she sees how it could be used in the future, specifically the next school year.

In Christy’s SoC initial profile, some categories of her LoU are in Stages 1 or 2. But because Christy has elected a later time for implementation, she falls in the overall LoU II (see Table 4.5).

Table 4.5

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Note: ◻ - Beginning of Year
◼ - End of Year
For instance, Christy does not talk about using data to change instruction with anyone except her data coach, which would indicate a LoU 0 nonuse in the category of sharing. Any collaborative teacher planning is mainly directed by more experienced teachers: “I kind of rely on them to tell me how we teach stuff.” Also, she demonstrated LoU I orientation in four categories, knowledge, acquiring information, status reporting and performing, because she still is trying to figure out the true definition of the innovation, differentiating between examples and non-examples. But what makes her cross the threshold of LoU I orientation to LoU II preparation is what Hall, Dirksen, and George (2006) call “Decision Point B,” where she has decided on a time to implement the innovation. The authors write, “According to Decision Point B, the individual becomes LoU II when and only when a date or time to begin using the innovation has been established” (p. 12). In her second interview, Christy discussed how she wanted to make sure that her teaching decisions were based on the test data, rather than just relying on her lead teachers for lesson plans, “I just feel like after seeing the ways things have turned out on these tests, that next year I have to make sure that our lessons are based on that. As the new teacher, I was just teaching what they were teaching.” Her decision to start using the data to change her instruction next year places her into LoU II. Such a decision means that Christy has the intention to use the innovation; she sees the possible worth of implementing the innovation but still does not know enough about the innovation to feel like she can immediately be successful.

In addition to her initial SoCQ and her LoU interview, Christy’s IC map also indicates that she was not currently using the innovation (See Table 4.6). On Desired Outcome 1, Christy selected Level 4, which meant that she is reviewing test data to identify student needs.
However, in Desired Outcome 2 and 3, Christy placed herself as not analyzing any data to determine professional learning goals and does not meet with others to talk about meeting professional learning goals. For Desired Outcome 4, she placed herself at a Level 1 for analyzing student data at least four times a year to monitor student improvements, and at a Level 2 for Desired Outcome 5, where she said she changes future curriculum plans based on data and re-teaches as needed. Here Christy contradicted what she stated in her interview, which was she was not re-teaching as needed but is planning to change instruction for the next year. This contradiction can be explained in Christy’s definition of re-teaching, test corrections, “I guess you could say we did remediate because we immediately corrected the test together as a class so they did see all the problems worked out correctly.” In reality, Christy should have selected Level 3 for Desired Outcome 5 since she was not re-teaching at all. Another option for Christy would have been to request a change in the levels by adding another level which had analyzing
student data four times a year (as mandated with the CBAs) and just making future curriculum changes. Either way, at the beginning of the year, Christy fell at a level of non-use with her concerns highest in acquiring information about the innovation.

Middle of the School Year

In her mid-year SoC profile, the difference between Christy’s Stage 5 and Stage 6 is minimal. Such a change could mean that during the middle of the year, Christy became more interested in trying out the innovation. During her second interview in January, Christy indicated that she was looking at data in more detail than in the past. She even relied on her data coach to give her more specific reports: “…because [the data coach] breaks it all down for me better than I could find what I’m looking for in there, so I mostly just use what she gave me.” However, when asked if she did anything with the data after looking at the reports, Christy responded, “I filed it away to look at before we even get to that unit next year because I’m under the impression that we’re giving the same CBA at the same time each year.” Although Christy became more interested in looking at data, she still had not actually implemented the innovation, which could explain the other change between her initial and second SoCQ: a shift from a positive to a negative one-two split.

In the months between the beginning of school and mid-year, Christy’s Stages 1 and 2 flipped, indicating a “negative one-two split,” which shows that Christy had begun to doubt the positives of the innovation. She still does not see how immediately implementing the innovation will help her teach successfully. In fact, Christy commented in January about how the overall CBA testing process only made her feel inadequate. The public accountability of her
students’ CBA scores being accessed by everyone from her peers to her principal seemed to deflate Christy’s confidence in her teaching ability. After a conversation with other teachers about her large amount of failures, she said,

And they were sympathetic like they were like you know I was there last year, mine were where yours are last year and they were just telling me it’s not my fault. You know though I still feel responsible. I didn’t make it better. But I don’t know how else to make it better other than just do better next year.

The quote above illustrates Christy’s frustration with the innovation as it was presented to her. She did not see how to change her instruction for her current students to meet their weaknesses. Instead, she only understood how to change her instruction for next year’s students. Her realization made her feel helpless because she was not able to meet her students’ needs. These negative feelings toward the testing process in general could explain the flip between Christy’s Stages 1 and 2, and her feelings of helplessness could increase her personal concerns about how the innovation would directly affect her.

Christy’s mid-year IC map reflects the change in her awareness of the innovation and her repeated collaboration with her peers (see Table 4.6). For Desired Outcome 1, Christy moved herself from a Level 4 to a Level 3, which meant she was meeting more with her grade level and content area. She also changed her Desired Outcome 3 from Level 5 to Level 3, which indicated that she had started to discuss student progress with her grade level and content area. Her final change was in Desired Outcome 5, where Christy selected Level 3 at where she was, which was a more realistic assessment than her first Level 2 choice. The changes indicated by her first and second IC map placements show Christy’s increase in awareness about the innovation and how she and her team used it. Data from her interview, SoCQ, and IC map suggest that at mid-year, Christy remained the same in her level of use, LoU II preparation, but
became more concerned about how the innovation would affect her personally as she learned more about it.

End of the School Year

The final stages of concern questionnaire showed Christy’s concerns remained similar to her second assessment, except that the difference between her Stage 5 and 6 became more pronounced (see Figure 4.3). Over the span of a year, Christy had moved to a “negative one-two split.” According to the last SoCQ profile, Christy became more negative toward fully using the innovation due to personal concerns. Christy’s peak score was at Stage 2, personal, inferring that she “is analyzing his or her relationship to the reward structure of the organization, determining his or her part in decision making, and considering potential conflicts with existing structures or personal commitment” (George, Hall, and Stiegelbauer, 2006). Her peak score goes along with her expressed feelings of inadequacy and helplessness when addressing student weaknesses. In her last interview, when asked what she thought were the effects of using the innovation, she lamented that so far, looking at data has only upset her: “I just feel sad...that’s the effect. I have to know if the changes I made based on the data really made improvement, and I won’t know until next year.” Christy’s high level of personal concerns had affected her current use of the innovation and she decided to put off implementing it until next year.

Although Christy may be exhibiting negative feelings toward the innovation, her final levels of use interview suggests that Christy has moved to a complete Level II preparation, which means that she is still planning to use the innovation next year (see Table 4.5). There has
been growth in Christy’s use of the innovation; in all but two categories, acquiring information and sharing, Christy either moved to or was already at a preparation level, exhibiting that she knew more about the innovation and had specific plans for implementing the innovation next year. Christy wanted to look at students’ past performance data before the school year begins: “Based on the students I get like right away I want to look at...like I don’t think I knew how to look at stuff at first last year of how they did in the previous grade.” And she also wanted to use the knowledge she gained from looking at test data this year to change her teaching practices next year:

I’ve already made lots of notes in my...in what I’ve done so I can make sure I do different for next year... Based on, oh, all my kids missed this kind of question, I need to change the way I teach that.

So, even though Christy worried about how the innovation would affect her personally as a teacher, she was still interested in trying the innovation at a later date, based on what she had learned about it during her first year of teaching.

Christy’s final IC map placement confirms her plans as well (see Table 4.6). She has not moved in all but one desired outcome since her mid-year assessment due to her plans to make changes next year. In Desired Outcome 5, she selected Level 2 over Level 3, indicating that she does now reteach as needed based on data. However, her definition of re-teaching is cloudy: “And any re-teaching has happened only if I realized it quick enough, but usually we just move along. The re-teaching would just be like tutoring because when it came we got way behind. It just seemed like a long time went by.” It seems that her idea of re-teaching is more like tutoring, which supports her LoU of planning, because she still has not totally implemented the
innovation. Christy is not currently using test data to change instruction, she is only using data to remediate when she finds the time.

Throughout the school year, Christy wondered how exactly she was supposed to implement the innovation. She was only able to see how she could use test data to change instruction for the next school year, and as a result, she did not try at any time throughout the year to change her instruction to meet student needs. Because Christy’s fellow 7th grade teachers did not use data when planning, Christy was never able to see the innovation in action, which could have influenced her minimal growth throughout the year.

Data Coach, Cynda and Teacher, Christy, Relationship

Both Cynda and Christy were new to the campus during the 2009-2010 school year. Cynda was returning from a long absence from the education profession and Christy was a novice teacher. The resulting relationship was one based on the naivety of a new data coach and new teacher, and in the end, neither knew much about the other.

Cynda and Christy only met once about data the entire year, and that brief meeting occurred after the first CBA. Christy did not meet with the other math teachers for her first meeting, because she had been absent for the group meeting. Cynda, the data coach, described their first and only data conversation,

She was very interested in receiving her information immediately. We met briefly initially when I first gave her the information, and then we did a follow-up and she had lots of great questions. She expressed those concerns to me. She was very thorough in how she analyzed the data she was given. Again she’s a new teacher so I think its overwhelming for her, but I definitely think it’s a priority for her and she’s going to use that to help direct her future planning.
Cynda and Christy agreed on one thing; the data were “overwhelming” for Christy. Christy said several times throughout her interviews that she “felt bad” knowing that the students would not be re-taught material, but she did not know how to fix that problem. Cynda’s idea that changing instruction was a “priority” for Christy was incorrect. Christy would not change her instruction until the next school year. Cynda also explained the results of the meeting, stating that Christy used the information she received in the meeting to help re-teach material:

She used the current data on the CBA to re-teach some areas that her students were weak in. As far as the future, she said to me that she would be using the CBA information on the CBA 2 from last year to help guide her lesson planning for the next period between tests so that she would know as a whole where the students were weak last year.

Cynda assumed that because of the discussion she and Christy had about the data, Christy would be using those conclusions to address current and future student weaknesses in her classroom.

What Christy took from the meeting, however, was different from what Cynda described. Although she confirmed Cynda’s hypothesis that she would be using the data to change future instruction, it would not be in the near future. Christy’s plans for instructional change would not be completed until the next school year:

I’ve already made lots of notes in my...in what I’ve done so I can make sure I do different for next year... Based on the data. Based on, oh, all my kids missed this kind of question, I need to change the way I teach that.

Also, when probed about how Christy remediated students after identifying their weaknesses on the CBA as suggested by Cynda, Christy answered, “No, because we had already corrected and moved on. A couple of weeks had gone by...by the time we looked at all the data.” The data coach assumed that the teacher would take immediate action in her classroom after
looking at the data in their meeting together. The teacher, however, went back to her classroom and did something different that did not relate to the data. Although Christy’s expressed concerns or worries during the meeting were real, her promises to remediate and re-teach immediately, as reported by the data coach, were not.

The comparison between the data coach completed IC map and the teacher completed IC map also indicates a lack of communication between the two (see Table 4.6). At the beginning of the year, Cynda alternately labeled all but one of the desired outcomes on Christy, suggesting limited knowledge of Christy’s instructional habits. She targeted Desired Outcome 1; Christy did analyze test data to identify student learning priorities. However, after that assessment, Cynda misrepresented the rest of the outcomes. Most of Cynda’s assumptions were based on Christy’s new teacher status: “I don’t know if she’s there yet. She’s just a new teacher. Maybe she’ll utilize it more. It will depend a lot on analyzing data for her instruction like she told me she would.”

The rest of the year went for Christy as it had in the beginning for the most part. Cynda admitted in March, “We haven’t met as a group with her since the very beginning because she missed the two that we had and then I met with her individually, and then we got into second semester.” Therefore, Christy did not meet with her data coach again. She did, however, have access to the reports run by her data coach after each CBA. Cynda described how she dealt with CBA data amidst all of the testing going on during the spring semester,

What I did was I gave out everything. I said, please let me know if you would like to meet, and I also gave them a lot less than I usually give them. [The tests] were on my calendar and if a teacher comes in and I need to help them, with the printing or the scanning, you know... then we do that quick and really that’s the scope of it at this point and especially because testing is new for me.
The teachers received their data typically in electronic form from Cynda, and as she reported, she made sure that “every email always says you know please let me know if there’s anything else you need so they know I am available to them and I will get things to them as fast as they ask.” Christy never asked. Instead, she simply glanced at the data and then filed it away for future use: “I filed it away to look at before we even get to that unit next year because I’m under the impression that we’re giving the same CBA at the same time each year.” Ironically, Cynda assumed quite the opposite of Christy. In her last interview, she commented,

I think she is honestly affected by it and as a new teacher, she didn’t think it was an option to throw it in the trash, you know... so she’s using it. She’d be afraid not to use it in case there was a follow up to make sure she was using it.

The inconsistencies in the stories of the data coach and the teacher indicate a relationship based on miscommunication and misunderstanding; instead it seems that these two did their professional duty, but did not invest any more in the relationship than required.

Cynda’s IC map completion during March differed in comparison with Christy’s mid-year map (see Table 4.6). They were the same on Desired Outcome 1 and Desired Outcome 3, which confirmed that Cynda’s assumptions about Christy’s use of data were correct: Christy was still analyzing data and looking at them continuously. However, the rest of the desired outcomes differed, indicating that Cynda had failed to connect sufficiently with Christy to know exactly where she was in her use of the innovation.

Cynda admitted to feeling overwhelmed when she joked with me, “I’m telling you next year, I’ll be so much better at interviewing when I get so much more experience under my belt where I can realize what’s coming and then plan for that.” As a first year data coach and testing
The coordinator, Cynda, could not keep track of administering and organizing tests, along with her CBA duties. In March she talked about where CBAs fit into the rest of her duties as a data coach.

The week before the writing TAKS, the week of the writing TAKS and the week after, which is when we did the reading portion of the TELPAS, every single CBA took place in the school. So this week, finally, I ran all the test reports for [my principal]. This week, finally, I sat down and created their item analysis and then gave them test histories from this test and then a test history for next CBA.

For Cynda, coordinating testing interfered with the timeliness of her CBA data reports to the teachers, and as a result, teachers like Christy did not get their data until a few weeks after the test had been taken. This delay possibly contributed to Christy’s confusion about how to remediate or re-teach student weaknesses that were not even identified until several weeks after the unit was completed.

Regardless of the undeveloped relationship between Christy and Cynda, Christy still managed to develop in her levels of use. Although Cynda possibly contributed to Christy’s higher level of use by initially meeting with her to explain the reports and sharing reports after each CBA, most of Cynda’s growth was due to her own desires to make the innovation work. In fact, when asked at the end of the year if she missed meeting with the data coach, Christy answered,

No, because she...the data that we got from her, she has just since handed it to us...or in our box or something. We hadn’t really had a need about it because once I met with her initially I knew how to read it all...

Christy thought that the innovation was mainly about how the individual teacher uses data to change instruction. Since she had not experienced a group meeting and only experienced an abbreviated meeting with her data coach, Christy did not understand why a data coach was necessary in implementing the innovation. To Christy, the implementation of the innovation...
was autonomous, and therefore, she did not need a data coach or any other teacher, for that matter, to help her use the innovation.

In addition, Christy acknowledged the advantages to using the innovation, which contributed to her self-motivation. She could see how it could work to her benefit, and as a result, she began to prepare to use it. At the beginning of the year, she explained how the innovation might benefit her classroom,

Well it seems like a wonderful way to see the weaknesses overall like broken down by SE where historically there's a weakness so there's an obvious place something needs to be done different. So had I looked at that before we started the lesson, then I'd been more mindful of how much time I was spending on those things when I was teaching.

As proof of her self-motivation, Christy independently explored the district’s data management program and discovered data that she had not previously known was available to her. When asked how she decided to look up her incoming student weaknesses before the next school year began, Christy said,

I didn’t know [that data] was there. I didn’t even know how to get into [the district data management software]. I didn’t know how to tell what kids I had, had even passed it or not passed TAKS last year, until later in the school year... Um, I think I figured it out, um, probably almost halfway through the year.

Christy’s self-motivation helped her to plan for changes in her use of the innovation, and ultimately helped her to move her level of use to a complete LoU II preparation.

At this school, the data coach did not have much influence on the levels of use of the teacher. The same cannot be said, however, for Christy’s stages of concern. Cynda’s lack of involvement in Christy’s use of the innovation directly affected Christy’s movement of stages throughout the school year (see Table 4.5). At the beginning of the year, Christy possessed a positive non-user profile, when she was eager to learn more about the innovation. The short
meeting with her data coach was not enough to make her feel more comfortable with the innovation though, and as a result, by mid-year, she had shifted to a negative non-user.

Throughout the year, her personal concerns of how she just felt sad that her students’ scores were so low were never addressed. The data coach knew how Christy felt, but did not do much to ease her fears. At the end of the year, Cynda talked about Christy’s insecurities and the teacher’s use of data:

I think she is using it a lot more than a lot of those older teachers that have been in the classroom a long time. I think it upsets her more than it upsets other teachers, which is not a bad thing because if you’re upset by what you’re seeing then you’re going to take that to heart and you’re going to use it to help.

In reality though, Christy’s sensitivity about her students’ scores were what made her more concerned about the personal side of data and made her think that other teaching strategies might be more successful. When asked if she would have changed anything about their first and only meeting, Cynda hints at the same conclusion,

I would have changed the fact that she wasn’t with her group. I think it is vital as a new teacher to hear your colleagues who have experience with [looking at the data]. To see areas for her to focus on her weaknesses, but she didn’t pay attention to areas where she was strong. And then, not having those resources available in the room with her to say ‘Wow what did you do differently?’ And putting the shoe on the other foot, they might say, ‘Hey look,[Christy] what did you do differently here?,’ because she had several areas that were strong.

As suggested by Cynda, a group setting for a data discussion would have been ideal for a new teacher who is unaware of how data is viewed on her campus or in her district. Without regular reassurance from others, the data became a non-influential factor in Christy’s teaching. Instead of finding her strengths, Christy only saw her weaknesses as a teacher, and in her own words, it just made her sad. Being autonomous in her use of the innovation and having only minimal interaction with her data coach made her personal concerns or Stage 3 increase and made her
think that perhaps using test data to change instruction was not the only way to increase
student performance. Cynda’s lack of interaction with Christy affected her stages of concern
negatively.

By the end of the year, Cynda correctly placed Christy on the IC Map, but she admitted
that she guessed on most of her placements. Many of her explanations about why she chose
certain levels for Christy begin with “I don’t know.” Concerning Desired Outcome 1, she stated,

Well, I don’t really know. Other that the fact that at that point she and I had sat
together and looked at it so that maybe why and just based on the conversations we’ve
had in passing with each other, we don’t talk so much about what everyone else is
doing. We are talking about her in specifics.

In addition, when she discussed why she chose Level 2 for Desired Outcome 2, Cynda admits:

Only because I think...I don’t know, when I see this, it would believe me to think she
would be looking at things other than math and I don’t know if that is necessarily
happening, but she is using all of her data, so the math and all of the TAKS data.

And finally, on Desired Outcome 5, Cynda describes her choice of Level 2 for Cynda:

Well, because we give them CBA data when they have CBAs which there was three, so
she received her TAKS data from the year before and now she has their current TAKS,
but I don’t know that, I mean she’s analyzing the classroom activities but I don’t know as
far as like the testing data, from my knowledge...I don’t know, maybe she is a Level 1.

So although Cynda’s placements are more in line with Christy’s own IC map placements, she still
is not quite sure if she is right. The lack of depth in the relationship between data coach and
teacher led to a lack of knowledge about where exactly Christy was in her use of the innovation,
and ultimately led to the lack of real movement in her levels of use and caused a rise in her
personal concerns about the innovation.

From a phenomenological perspective, Christy felt like the influence of the data coach
was non-existent, but Cynda felt that she was integral to Christy’s data use. Although Christy
liked the reports Cynda created, she only saw her mostly as a “test lady.” Cynda assumed that Christy would ask her for help if she needed it, but Christy never asked. As a result, both had different perspectives concerning the data coach’s influence, which ultimately led to the data coach not influencing the teacher at all.

Teacher Trends

The following section addresses similarities and differences between all three teachers in regard to their use of the innovation. During the second step of making meaning with the data, several commonalities surfaced regarding the teachers, data coaches, and their consequential relationship with the innovation of using test data to change instruction. In the description below, all three teachers agreed in some form in their interviews, which supported several general conclusions. These statements are based on only three teachers’ experience with the innovation and the resulting relationship with their data coach.

Examining Data

In the span of one school year, all three middle school math teachers did not look at data in depth unless a data coach or Instructional Specialist was present. When they looked on their own, they mainly just looked at overall scores, rather than breaking down the data by student expectations, TAKS objectives, ethnicity, gender, SES, etc. In addition, on all three campuses, a data coach facilitated group meetings where teachers could talk together concerning the data. However, in the absence of a data coach, middle school math teachers did
not discuss or analyze test data collaboratively. Amy, Becky, and Christy all admitted that unless their data coach was present, they did not plan with the assistance of test data.

Value of the Data Coach to Teachers

In several interviews, all three middle school math teachers saw the value in the intervention of the data coach. They knew that the data coach would assist them by running reports, organize and facilitate data meetings, and coordinating standardized tests on their campus. In addition to valuing the data coach, the middle school teachers participating in this study valued collaborative data meetings. Amy and Becky both missed their meetings with their data coach in the spring semester. Although Christy had never actually participated in a data meeting with other teachers present, she still craved discussions with her peers concerning data.

Innovation Misconceptions

When the teachers were presented with the innovation configuration map involved in this study, teacher confusion concerning the definition of “changing instruction” became apparent. The innovation of using test data to change instruction lacked specific definition by the district. Therefore, teachers were not quite sure what exactly was required of them when changing instruction. The three teachers in this study varied in their definition; their ideas of changing instruction included warm-ups, test corrections, adding problems to a test, or re-teaching a concept in a different way. According to Hall and Hord (2001), confusion about the definition of an innovation leads to less fidelity to its original design: “It sometimes also leads to
the early adopters of the innovation establishing practices that are later determined to be inappropriate or even not in keeping with the original design” (p. 53). Amy, Becky and Christy had already established what they thought were acceptable practices of the innovation. Only the district administrators knew what exact instructional changes based on data that they wanted to see from teachers. Because the district’s vision of the innovation was not shared with teachers, the implementation of the innovation was problematic.

*Stages of Concern*

Although the three teachers involved in this study all began the school year with varying concerns about the innovation, all three teachers had a peak concern at Stage 2 personal by the end of the year. Hall and Hord (2001) write that change agents might view high personal concerns as resistance, but really, “There is an uncertainty about what will be expected and self-doubts about one’s ability to succeed with the new way” (p. 72). Ultimately, Hall and Hord write, the fault probably lies in the change facilitator’s “failure to address, early on, Stage 1 Informational concerns. When people don’t know what is happening, it is perfectly normal for Stage 2 Personal concerns to become more intense” (p. 72). Hall and Hord’s assertion supports the idea that because the teachers did not know what was expected of their implementation through an IC map or consistent data meetings, they were unable to move past Stage 2 concerns.

*Data Coach Trends*

The commonalities between data coaches were minimal. One data coach was well-
established with over 22 years in education and possessed a doctorate in curriculum and instruction, one data coach had taught for over 11 years on the same campus, and one data coach only had 5 years of experience and had just returned from an 8-year hiatus from teaching. Consequently, the variety of backgrounds and personalities possessed by the three data coaches limited the similarities between them.

An Attitude of Service

All three data coaches, however, mentioned that the reason they had accepted their current position was that they wanted to help others. All three mentioned the word “help” several times when describing interactions with teachers and administration. The underlying theme in these data coaches’ daily activities was serving others to the best of their ability.

Out of the Classroom

In addition to an attitude of service, all three data coaches also knew that they did not want to go back into the classroom after being employed as a data coach. Although all three data coaches shared different plans for the future, none of them wanted to return to the classroom. One coach was happy in her current position, one wanted to be a counselor, and the other wanted to move up to administration in some form, but none thought they would be teaching again.

Varying Job Description

The job description of the campus data coach varied by campus (see Appendix F). All
three coaches possessed common duties such as coordinating tests and meeting with teachers concerning data. However, each coach also participated in duties that were unique to her campus, which left the district job description inaccurate, as each coach’s campus required some different tasks.

Challenges

By the end of the school year, two major challenges to the accuracy and validity of this study had arisen. The self-created IC map became a challenge toward the end of the year because it was not created by the district. Even though teachers and data coaches were asked to make revisions as needed, there were very few revisions made to the map, as if the participants did not know enough about the innovation to recommend changes to the map. I found these minimal changes to a self-created map to be a challenge. It became apparent that the innovation had not been defined well enough to teachers and data coaches for the participants involved in this study to even assess whether the IC map was accurate.

First, the teachers and data coaches could not agree on the definition of “changing instruction” as detailed in chapter four. The misconceptions made half of Desired Outcomes 4 and 5, “revise school and classroom instructional strategies,” difficult to assess because no one could agree on what was entailed in revising instructional strategies. In addition, Desired Outcomes 1, 2, and 3 do not discuss whether action steps were carried out. Instead, the outcomes mainly state that the learning priorities for students and professionals were identified. As previously discussed, the first three desired outcomes can be completed just by having certain policies and procedures in place, which require teachers to meet with their data
coach. If teachers followed these mandatory policies, they were guaranteed at least a level 3 on all three desired outcomes. What really mattered was whether the teacher was participating in creating an action step of instructional change and carrying it out in the classroom. A map containing the information mentioned above would have been more useful in figuring out who was implementing the innovation as the district desired. If data coaches, including me, and teachers were more familiar with the district’s definition of the innovation, perhaps the IC map would have been developed into a more accurate tool for teacher placement on the innovation use continuum.

The second major challenge to arise was my position in the district as a high school data coach. Although I was not a part of the middle school team of data coaches, her position as a data coach may have limited teacher responses during interviews. Data coaches did not seem intimidated by the position of the researcher. Their responses to interview questions seemed honest and gave more detail than teacher responses. Teacher responses, however, seemed more professional than personal, which leads me to believe that there may have been some distrust of me as the researcher, even though confidentiality was communicated and ensured.

For instance, throughout her interviews, Amy claimed to be a user of the innovation. She outlined to me her collaborative meetings with her peers to discuss data and her instructional plans based on CBA data. However, by mid-year, Amy’s administrative staff discovered that she was significantly behind in her curriculum, she had not administered the last two CBAs, and she had not been planning with her peer teacher. An instructional specialist was called in to remediate the students and to assist Amy in catching up with the curriculum.
Amy obviously had not been honest with me in her first interview. Her dishonesty made the assessment of her use of the innovation much more difficult.

Becky and Christy were truthful in their interviews according to triangulated data, but they did not go into much detail during conversations with me. Becky never explained what went on in that emotional CBA 2 meeting, and she never said a negative word about anyone on her campus, even though she mentioned being frustrated several times. The same can be said about Christy, but she was very worried about pleasing me in the interviews. During interviews, Christy occasionally would end her answer to a question with, “Is that okay?” I had to reassure Christy many times that her answers to the questions were normal and that she was “doing fine.” In addition, according to district guidelines, I had to inform the principal that I was administering interviews with the data coach and the teacher. The data coaches and the teachers involved in the study knew that their principal was aware of their participation. This knowledge may have limited their honesty as well.

Such challenges can only enhance further research. Researchers wishing to repeat this study must first gather a thorough definition of the innovation through a completed IC map from district administrators. Moreover, researchers must realize teacher sensitivity about their practice and their peers and adapt by employing an impartial interviewer to complete interviews. Ensuring confidentiality is not enough; teachers must somehow be assured of their anonymity. Overall, the challenges to this study add to the need for more research concerning data coaches and the innovation of using test data to change instruction.
Summary

The similarities between the three teachers’ perspectives concerning the innovation of using test data to change instruction illustrate the effect of the implementation of the innovation at the campus level. Teacher levels of use interviews, Stage of Concern Questionnaires, and follow-up interviews provided data which allowed an in-depth look at how teachers perceived and implemented the innovation at the time of the study. The interviews with the data coaches assisted me in understanding the teacher and data coach relationship and how it affected the teacher’s use of the innovation. The interview data provided by data coaches also offered a glimpse of the lived experience of the data coach and another perspective on the teacher’s innovation implementation. Overall, the data affords a rare account of one district’s attempt to implement the innovation of using test data to change instruction and the intervention of the data coach to enhance teacher use of the innovation.
CHAPTER 5

CONCLUSIONS

The conclusions found in the data analyses of: interviews with teachers, survey of concern responses, and level of use tracking with innovation configuration matrices are discussed from the perspective of two research questions posed in this study. Conclusions are presented in the format of question and conclusion. This is followed by implication, recommendations, advantages, and summary.

Question 1: How does the data coach influence teacher use of test data to make instructional decisions?

Conclusion: Two out of three teachers, Amy and Christy, never used the innovation during the school year, although by the end of the year, they both had moved closer toward employing the innovation in their classroom. In addition, the teachers’ experiences with the data coaches were minimal, so data coach influence on teacher use of the innovation was minimal as well.

Question 2: How does the data coach resolve teacher concerns about using test data to make instructional decisions?

Conclusion: By the end of the year, all teachers were aware of the innovation, but all three exhibited a peak score with Personal concerns. Two of the three teachers, Amy and Christy, moved past self-based concerns, while one teacher, Becky, decreased in her Management concerns. At the end of the year, she began to worry more about how the innovation affected her personally, and ended up with the others among the task-based concerns. As previously mentioned, these changes in the profiles were affected by
teacher misconceptions of the innovation, which could have been addressed with consistent data coach meetings and a thorough IC map. Because two of the three data coaches, Beatrice and Cynda, did not meet with their teachers consistently, Becky relied on her own interest in the innovation to increase her innovation use and Christy had difficulty completely understanding the innovation. Overall, meetings with the data coach and misconceptions about the design of the innovation affected how these teachers felt about the innovation. Data coaches could have resolved these issues with more frequent interaction with the teachers.

Implications for Administrators

The above conclusions coupled with the commonalities of the teachers involved in this study indicate two distinct implications for district administrators, current middle school data coaches, and middle school mathematics teachers:

1. The innovation of the middle school data coach was successful in the beginning of the year, but mid-year, once the data coaches’ priorities changed to test coordination, the priorities of the teachers changed as well.

2. Change facilitators must create an ecology and a culture conducive to data-based decision making so that the context of the campus leads teachers to use the innovation.

The Innovation of the Middle School Data Coach

According to the three cases in this study, the administrators’ assumptions that teachers were not using data to make instructional decisions were mostly true. Two of the three teachers had not used data to make decisions by the end of the year. However, the two non-
users, Amy and Christy, would probably not even have broached the subject of data-based decision making if it were not for the interventions of their campus data coach at the beginning of the year. The self-motivation of the one user of the innovation, Becky, led her to move to a higher level of use. However, the question remains, if the data coaches were able to meet consistently throughout the year with these three teachers, would their levels of use and stages of concern have been different at the end of the year.

In the second half of the year while data coaches organized tests, teachers were left with only their own motivation to continue use of the innovation. Administrative considerations must be made concerning data coach responsibilities in order to maximize their impact on instruction and student achievement. District and campus leaders must alter several aspects of the design and implementation of the data coach in order for this job position to be successful.

District administrators who consider using data coaches to enhance instruction would be well served to note the teachers’ understanding of the term “changing instruction.” Two of the three teachers’ misconception of the district’s definition of “changing instruction” can only lead to a lack of fidelity to the district’s vision of the ideal implementation of using test data to change instruction. As seen by Amy’s use of warm-ups and Christy’s use of test corrections to strengthen student weaknesses, some middle school mathematics teachers were analyzing the data, but they were not actually changing their instruction to meet student needs. Still, in interviews, Amy indicated that she was an innovation user. Additionally, when Christy was asked how she changed her instruction, she answered that she had administered test corrections. These two teachers’ ideas of changing instruction illustrates the need for administrators to share their ideal definition of changing instruction or re-teaching with
innovation users in order for the innovation to be implemented successfully.

Second, district administrators involved in this North Texas district should celebrate that these three middle school mathematics teachers valued the innovation of the data coach. All three teachers appreciated the assistance of the data coach. These teachers found worth in the reports printed by the data coach, and all three saw the importance of data meetings with their peers. Therefore, the teachers in this study saw the importance of the data coach, and district administrators should mark the data coach as a valuable resource in moving toward the goal of getting teachers to use the innovation.

The Formula for Change

All three data coaches assisted mainly in getting teachers to analyze the data. By scheduling meetings, organizing teacher-friendly data reports, and facilitating conversations, teachers looked at the data and discussed changing instruction with the help of the data coach. However, as discussed earlier in this study, the problem lies in the second step of the innovation, actually getting the teachers to change instruction. Only one of the three teachers, Becky, changed her instruction after analyzing test data. She was the only one who, on her own, assessed student progress then taught material in a different way to address student needs.

Throughout the study, this teacher used the innovation, and the other two did not. Becky was a novice teacher, entering teaching for the first time directly after graduating from college. She moved in from a different state, and she seemed rather timid and not a risk taker. By the end of the study, the major influence on Becky’s use of the innovation seemed to be the
policies and procedures put in place, along with the group culture of making data-based decisions. These policies and procedures consisted of mandatory weekly team meetings, mandatory classroom time spent on remediation, and several meetings with the data coach at the beginning of the year. Such an ecology was created and supported by the principal, with the data coach acting on behalf of the principal in several instances. In addition, the frequent meetings during the first six weeks of school created a culture of data-based decision making amongst the team. Because Becky participated in these meetings and saw how the innovation worked, Becky was better able to understand how to use the innovation with her current students.

School B’s ecology and culture were created and supported by the principal. This principal created a context in which using data for instructional decisions was central to lesson planning and student remediation. Becky’s use of data to make instructional changes was due to the interventions made by her principal. This conclusion supports the assertion by Huling et al. (1982) that the principal is a highly effective change facilitator.

District administrators can use the previous information to increase other teachers’ use of the innovation by sharing the district definition of the innovation with principals and data coaches. Additionally, the district must help these campus leaders understand the importance of set campus policies and procedures regarding the enhanced use of the innovation. However, all three campuses in this study provided the block program for its math teachers, thus providing the necessary ecology. However, as Hall and Hord (2001) suggest, there must be more than just ecology to promote change. Principals or campus leaders must also work to create a culture where data-based decision making is integral to instructional planning.
In order to repeat Becky’s experience using the innovation with other teachers, campuses must set policies and procedures regarding using test data to change instruction, and must work to train teachers on the importance of and the use of data to make instructional decisions. Campus leaders must train the teachers on the ideal use of the innovation in the classroom, including modeling the use of the innovation and repeatedly assessing and redirecting teacher implementation of using test data to change instruction.

Implications for Data Coaches

Current middle school data coaches can see from this study that teachers not only value the data coach position on campus, but they also value the data reports and data meetings completed by the data coach. In addition, data coaches should note that without their help, middle school mathematics teachers did not collaborate concerning data. Still, even when the data coach met with these teachers, there was no guarantee that instruction would change in the classroom. Therefore, data coaches must find a way to get teachers to change instruction after leaving the data meetings.

According to the case study of the teacher who was using the innovation, data coaches can try several consistent meetings with teachers so that teachers can see how to use the innovation. Furthermore, data coaches can enlist the help of their campus administrative staff to mandate teacher use of the innovation through campus policies and procedures that will assist teachers in proper use of the innovation. Data coaches must also not overestimate teachers’ background knowledge in data-based decision making. Coaches should consider providing staff development on the use of CBA data to change instruction.
Finally, data coaches can use a change assessment tool such as the concerns-based adoption model to determine where teachers are in their use of and concerns about the innovation. Each interview and SoCQ took a total of thirty minutes to administer to an individual teacher. The administration of these tools did not require much time, but gave me valuable information regarding the teachers’ perspective concerning the innovation. In addition, if an IC map were supplied by the district, soliciting teacher input on their placement on the map, it could also be used as a quick assessment tool for data coaches to better understand where their teachers are in regard to the innovation. If data coaches utilized these tools on their campus with at least one teacher from each team, then data coaches may find it easier to prescribe specific interventions for each teacher or team in order to get them to use the innovation in its ideal state.

Implications for Teachers

Practicing teachers can take from this study the importance of completely understanding the district’s shared vision of using test data to change instruction. The definition of data-based decision making must include an action step. Analyzing test data and making decisions based on that data are not enough; teachers must create and execute an action step based on those decisions. Teachers must demand from the district a common definition of what that action step entails. Then, teachers must work to determine the best action necessary to meet student needs.

Obviously, finding the time to analyze the data and research action step options or alternative instructional strategies is difficult for teachers. When employed in a district, data
coaches can save the teacher time by creating teacher-friendly data reports and researching instructional strategies for the teachers. When data coaches are not available, campus administrators should step in as a data coach, and assist the teachers in data formatting, analysis, and instructional strategies. All three teachers mentioned their lack of time to analyze data properly, and a campus leader must make the time to assist teachers’ in their use of the innovation in order for the innovation to be implemented properly.

Recommendations for Additional Research

Additional research regarding data coaches and teacher use of the innovation of using test data to change instruction will enhance this study’s findings and deepen educators’ understanding of data-based decision making and its implications on classroom instruction. Although this sample was small, the study was valuable because of its depth and detail. A larger sample involved in the same study might offer researchers and district administrators more information about how many of its teachers are actually using the innovation and how many data coaches are affecting teacher use of the innovation. In addition, a larger sample might allow for a quantitative study using the CBAM tools, the levels of use interview protocol and the stages of concern questionnaire. Even if these tools were administered just at the beginning of the year and the end of the year, district administrators may get a better understanding of innovation use in the entire district. Questions that remain might be answered by a larger sample: What qualities do teachers who are using the innovation share? What qualities do non-users share?

Further research is also needed to determine why a teacher decides to make
instructional changes after discussions in a data meeting or analyzing the data. During the in-depth interviews with the three teachers in this study, the data coaches mentioned that action steps were established at the end of their data meeting with the teachers. However, only one of the three teachers actually completed the action step in the classroom. Researchers must examine what makes teachers want to use the innovation in its ideal state in order to arm data coaches and campus administrators with the proper tools to help teachers implement the innovation.

Finally, researchers must determine if a teacher needs to collaborate to make data-based decisions in the classroom. Some researchers believe that collaboration is a necessary part of making data-based decisions because of the teachers’ ability to hear other perspectives (Johnson (1996), Holcolmb (2004), Wellman and Lipton (2003), and Schmoker (2004). However, more empirical research should be completed in order to understand whether collaboration is necessary to successfully make data-based decisions. In the case of one innovation user, collaboration was not necessary for successful application of the innovation, although she did miss those discussions toward the end of the year. The district’s understanding and design of the innovation would be more beneficial if they knew that collaboration must be a part of successfully changing instruction.

Considerations

Although there was no concrete evidence of its existence, I felt there was a distinct possibility that the three teachers involved in this study saw data as a threat. Just as Killion (Knight, 2009) described part of the data coaches job as “creating a safe, blame-free
environment for ruthless analysis of data,” there may be an inherent teacher fear that data analysis could lead to highlighting ineffective teachers. Because of their fear of data, teachers may be more resistant to using it to change their instruction, and they may become more resistant when an administrator is involved in the analysis. Data coaches should consider their role among teachers in order to foster change within the school. Data coaches need to be trusted and viewed as a helpful peer in order for teachers to truly consider data as non-threatening.

Advantages

My position as a high school data coach also had its advantages. As a peer to middle school data coaches, I was able to relate to the pitfalls and successes expressed by this study’s data coaches in their interviews. In addition, I was better able to ask questions about data coach practices and philosophy because of her background in the position. During teacher interviews, she was also able to answer some teacher questions about where to find data or what test was next, which helped deepen the relationship between teacher and researcher. Finally, my ability to visit other schools and see other data coach practices enhanced my practice on my own campus. After my visits to three other campuses, I will be implementing a form of pre-testing and consistent data meetings on my own campus. In fact, she has since recommended to the district curriculum director that all data coaches be encouraged to visit campuses to glean best practices from other data coaches. In addition, interviews with teachers provided a perspective that many data coaches do not get to see: the teacher perspective. These interviews convinced me of the importance of modeling the innovation, revisiting action
steps, and utilizing the CBAM tools on her own campus to assess and refine use of the innovation at her school.

Summary

The data from this study allow a unique insight into teacher use of the innovation of using test data to change instruction. Data coach interviews also allowed a study of the lived experience of a data coach and how their actions can influence a teacher’s use of the innovation. This study’s small sample gave the research paradigm of data-based decision making an in-depth glimpse of the process of implementing data-based instructional decision making on three campuses in one large North Texas district. The conclusions indicated by the data should enhance district administrator, data coach, and teacher use of the innovation.
APPENDIX A

STAGES OF CONCERN PARAGRAPH DEFINITIONS
6 Refocusing: The focus is on the 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.

5 Collaboration: The focus is on coordination and cooperation with others regarding use of the innovation.

4 Consequence: Attention focuses on impact of the innovation on clients in his or her immediate sphere of influence. The focus is on relevance of the innovation for clients, evaluation of outcome including performance and competencies, and changes needed to increase client outcomes.

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.

2 Personal: Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her 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.

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 himself/herself 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.

0 Awareness: Little concern about or involvement with the innovation is indicated.
APPENDIX B

LEVELS OF USE OF THE INNOVATION
<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI</td>
<td><strong>Renewal</strong>: State in which the user re-evaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.</td>
</tr>
<tr>
<td>V</td>
<td><strong>Integration</strong>: State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.</td>
</tr>
<tr>
<td>IVB</td>
<td><strong>Refinement</strong>: State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.</td>
</tr>
<tr>
<td>IVA</td>
<td><strong>Routine</strong>: Use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.</td>
</tr>
<tr>
<td>III</td>
<td><strong>Mechanical Use</strong>: State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.</td>
</tr>
<tr>
<td>II</td>
<td><strong>Preparation</strong>: State in which the user is preparing for first use of the innovation.</td>
</tr>
<tr>
<td>I</td>
<td><strong>Orientation</strong>: State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demands upon user and user system.</td>
</tr>
<tr>
<td>0</td>
<td><strong>Nonuse</strong>: State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.</td>
</tr>
</tbody>
</table>
APPENDIX C

DATA-DRIVEN INNOVATION CONFIGURATION MAP
Desired Outcome 1: Analyzes disaggregated student test data (classroom, CBA, TAKS) to identify student learning priorities at the classroom school, and district levels.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzes test data to determine learning priorities of the students in the district, school, and grade level or content area.</td>
<td>Analyzes test data to identify professional learning priorities for the students within the school.</td>
<td>Analyzes test data to identify professional learning priorities for the students in a grade level or content area.</td>
<td>Reviews test data to identify individual classroom or student learning priorities.</td>
<td>Refrains from analyzing test data to determine professional learning priorities.</td>
</tr>
</tbody>
</table>

Desired Outcome 2: Analyzes disaggregated student test data (classroom, CBA TAKS) to identify learning need of professionals.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzes classroom, CBA and TAKS data, to determine learning needs of professionals. Ensures that data are disaggregated by gender, SES, ethnicity, etc.</td>
<td>Analyzes classroom, TAKS and CBA data to determine learning needs of professionals</td>
<td>Reviews either classroom, CBA or TAKS data (but not all) and student files to identify learning needs of professionals.</td>
<td>Refrains for analyzing any data to determine learning needs of professionals.</td>
</tr>
</tbody>
</table>
Desired Outcome 3: Works with colleagues to use disaggregated data to establish professional learning goals for students.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets with colleagues as a whole school to use test data to determine student learning goals.</td>
<td>Meets with a learning team to use disaggregated test data to determine student learning goals.</td>
<td>Meets with grade level or content area groups to use data to determine student learning goals.</td>
<td>Meets with professional staff to review data to determine student learning goals.</td>
<td>Works alone to determine student learning goals.</td>
</tr>
</tbody>
</table>

Desired Outcome 4: Analyzes relevant student test data (classroom, CBA, TAKS) in order to monitor and revise school and classroom improvement strategies, which includes all facets of the classroom (instruction, management, curriculum, etc).

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzes student test data continuously (at least four times a year) to monitor classroom and school improvements. Uses baseline data to monitor improvements across the school year.</td>
<td>Analyzes student data at the beginning and end of the school year to monitor classroom and school improvements.</td>
<td>Analyzes student test data at the end of the year to monitor classroom and school improvements.</td>
<td>Does not analyze student data to monitor classroom and school improvements.</td>
</tr>
</tbody>
</table>
Desired Outcome 5: Analyzes relevant student test data (classroom, CBA, TAKS) in order to revise school and classroom instruction strategies.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzes student test data continuously throughout the year and changes to future curriculum plans and reteaches as needed indicated by data.</td>
<td>Analyzes student test data occasionally (up to 4 times) throughout the year and as a result, changes future curriculum plans and reteaches as needed based on data.</td>
<td>Analyzes student test data occasionally (up to 4 times) throughout the year and as a result, changes future curriculum plans.</td>
<td>Analyzes student test data at the beginning and end of the school year and makes changes to future curriculum based on data.</td>
<td>Does not analyze student data to make changes to future curriculum.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

INTERVIEW QUESTIONS
Teacher Interview Questions

1. Did you look at the data before the meeting with your data coach?
2. Did you talk to any of your colleagues about the test results before the meeting?
3. What type of data or reports did you examine before and during the meeting? Which one is most helpful? Which is least helpful?
4. Who is in the meetings with you? How do you feel about those people being involved in talks about data with you?
5. How much do you participate in data meetings with your colleagues?
6. After looking at this Benchmark or CBA data, did you come up with an action plan? Did you carry through with it?
7. Did you think that the data meeting was successful? Why or why not?
8. Would you change anything about these data meetings? Are they valuable to you?
9. What type of remediation for that Benchmark or CBA did you do? Did you change instruction?
10. Discuss how you plan for each unit? Look at test data?
11. How often do you plan with colleagues? How often do they discuss test data when planning?
12. Have you visited the district data management software recently? What data or reports did you examine?
13. What other test data do you look at?
14. What does your data coach do for you? Describe her position in one word.

Data Coach Questions

1. Describe your last meeting with teacher (attitude? Participation? Data Covered? Decisions made? Your overall feelings about the meeting?)
2. Describe what you think the teacher has done with the topics discussed or decisions made in the last meeting.
3. How has your role changed this spring? Do you get to discuss data with teachers? Besides testing, what is taking up most of your time?
APPENDIX E

DATA ANALYSIS SPREADSHEET SAMPLE
<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHNG</td>
<td>0286.1.10</td>
<td>I look to see again how many of the</td>
</tr>
<tr>
<td>CHNG</td>
<td>0286.1.10</td>
<td>They go on warm-ups or they go on just kind of a</td>
</tr>
<tr>
<td>CHNG</td>
<td>0286.1.10</td>
<td>I'M HAVING TO GO …</td>
</tr>
<tr>
<td>CHNG</td>
<td>0286.1.10</td>
<td>And that's how I'm gonna do my tutoring is...</td>
</tr>
<tr>
<td>Duties</td>
<td>Allison</td>
<td>Beatrice</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>504 Student Indentification</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>AWARE, use and train</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Benchmark, Print, Scan, Report</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBA data Dissaggregate and Dissiminate to teachers and administrators</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CBA, Print, Copy, Scan, Report data</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Classroom Walk-throughs, Dana Center</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Daily Lunch Duty</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>End of Class Exams, Scan and Report</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>EOC test Training, Coordination, Administration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>First Week of School Planning Committee</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gates Macginitie test, Coordination, Administration, enter scores into AWARE</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Geography Bee Judge</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Grade Placement Committee</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>INOVA mentoring program</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>INOVA, use</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LPAC (Language Proficiency Assessment Committee)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Meet with teachers concerning CBA data</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Meet with teachers concerning Pre-test data</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Organize Campus Master Schedule</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>RTI (Response to Intervention) Committee, training and attendance</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Social Committee Member</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Spelling Bee Judge</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Student Schedule Changes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>TAKS data reports, format and print for teachers and administrators</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TAKS Field Test Training, Coordination, Administration</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TAKS Priority Student Indentification</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TAKS talks between teachers and students, organization</td>
<td>X</td>
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<td>TAKS Tutorial Student Indentification</td>
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Job Title: Data Coach  Wage/Hour Status: Exempt
Reports to: Principal  Pay Grade: 100
Dept.: Campus  Date Revised: 12/18/07

Primary Purpose:

Facilitate the efficient use of test data to inform and improve learning for all students. Serve on ASSIST team to follow student progress and make recommendations for student progress.
Scan, aggregate, and disaggregate curriculum-based assessments.
Hold conferences with department members to explain data; assist teachers to build subsequent instructional and targeted tutoring plans according to data.
Conduct classroom demonstrations and visits to empower teachers to change instruction as deemed necessary by data.
Provide students and teachers with appropriate testing environment and materials necessary to comply with the regulations and guidelines set forth by the Texas Education Agency.
Organize and implement training, assessment preparation and administration policies and procedures for state and local testing.

Qualifications:

Minimum Education/Certification:
Bachelor’s Degree from accredited university
Valid Texas teaching certificate

Special Knowledge/Skills:
Ability to aggregate and disaggregate data
Strong background and experience in instructional programs supporting accelerated instruction for special student populations
Thorough understanding of curriculum, instruction, and assessment alignment
Excellent communication and organizational skills attention to detail
Extensive computer skills especially with programs like File Maker
Willingness to work nights and weekends during peak testing periods.
Demonstrated ability to use AEIS-IT
Knowledge of Texas testing policies, procedures, and program including TAKS, TELPAS, and AP Testing

Experience:
Minimum of five years teaching experience in Texas
Demonstrated exemplary teaching ability as indicated by teacher appraisal (PDAS), supervisor, and peer recommendations and various leadership roles on campus.
Demonstrated ability to develop and present training/work sessions for teachers.
Demonstrated knowledge and expertise in instructional techniques and methodologies in current assignment.

**Major Responsibilities and Duties:**

**Working with Teachers on Student Learning:**

1. Work with individual students to follow progress toward meeting standard on TAKS and other assessments
2. Assist teachers with interpretation of state test results and curriculum-based assessments to assess individual student growth and need for improvement.
3. Coordinate the facilitation of District Curriculum Based Assessments (CBAs) by:
   a. Receiving documents from LISD Curriculum
   b. Preparing documents for distribution
   c. Collecting documents after testing
   d. Assisting in scoring tests as required by LISD Curriculum
4. Meet with teachers to review CBA assessment results to assess individual student growth and need for improvement.
5. Hold conferences with department members to explain data; assist teachers to build subsequent instructional and targeted tutoring plans according to data.
6. Work with teachers to develop tutoring targeted at individual student needs based on assessment data.
7. Work with teachers to adjust curricular plans to include re-teaching into lessons.
8. Research new students and process testing information for withdrawals and admissions.

**Data Management:**

9. Aggregate and disaggregate campus level data (TAKS, TELPAS, AMAO, AYP, curriculum based assessments etc.) results for student performance accountability to examine campus instructional efficacy.
10. Use data to:
    a. Suggest appropriate staff development,
    b. Discuss curriculum/instruction alignment issues with staff,
    c. Design curriculum based assessments for campus use and
    d. Develop instructional strategies and provide instructional materials for classroom use that differentiate instruction to address identified areas of weakness and enrich student strengths.
11. Gather, disaggregate, and disseminate data from reports of test scores from the Texas Education Agency for tests that include TAKS, ACT, SAT/PSAT, and AP Testing.

12. Update AEIS-IT.

**Testing Coordination:**

13. Coordinate with counselors to facilitate district acceleration tests.
14. Prepare rosters and lists of eligible students for state testing.
15. Identify special testing groups and provide for their testing needs (Special Education, ESL, Lewisville Learning Center, AEP, and JJAEP).
16. Keep documentation on all tests and testing procedures and exempted students.
17. Attend training prior to each test administration.
18. Train proctors on campus.
19. Check inventories on all testing materials before and after tests.
20. Coordinate with principal or designee to assign rooms, rearrange school day and schedules to fit testing situations.
22. Prepare and mail all testing reports to parents following each test administration.
23. Collect and update statistics on campus results.
24. Update AEIS-IT.
25. Organize and lead review sessions for various testing requirements.

**Support the district mission, vision, and strategic goals.**

26. Collaborate with other personnel in a collegial, supportive manner.
27. Demonstrate integrity and ethics.
28. Display proficient levels of technology applications.
29. Utilize time wisely for effective management of job responsibilities.
30. Maintain punctuality in daily work times, appointments, and meetings.
31. Meet task completion deadlines, established by the supervisor.
32. Maintain a positive and professional tone in all communications (i.e. e-mail, written, and verbal).

33. Present a professional image in grooming and attire, and serve as a role model for all district administrators.

34. Able to meet timelines and produce error-free materials.

35. Perform other duties and accept other responsibilities as assigned.

**Working Conditions:**

**Mental Demands/Physical Demands/Environmental Factors:**
Maintain emotional control under stress.
Frequent standing, stooping, bending, pulling, and pushing.
Lifting, moving, and transporting boxes of testing materials.
Irregular hours, some nights, some weekends depending on testing schedule.

**Physical Demands:**

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The foregoing statements describe the general purpose and responsibilities assigned to this job and are not an exhaustive list of all responsibilities and duties that may be assigned or skills that may be required.
APPENDIX H

MY STORY
The semester before I became a high school Data Coach, I stumbled upon the article by Killion and Bellamy (2001) while researching data-based decision making. As soon as I read it, I knew that data analysts were what educators needed on campuses to assist teachers in utilizing data to make instructional decisions. Within the week and purely by coincidence, our district announced that it would be posting the data coach position on middle school and high school campuses. I was excited at the prospect, but I worried about being viewed as a peer and not an administrator. As a high school testing coordinator for seven years before the data coach position, I knew the administrator role well, and I also knew how threatening data could be to the practicing teacher. If I was viewed as an administrator, teachers would be fearful of examining data in my presence. Whereas, if viewed in a peer role, as suggested by Killion and Bellamy, the teachers would be less fearful and more open to looking at data, drawing conclusions, and truly implementing change based on that data.

Having served as a testing coordinator and now a data coach, I am aware of the contrast between the two positions. Testing coordinators must make schedules, take away conferences, report irregularities, and execute quick decisions which may irritate their coworkers, but would best serve the campus. On the other hand, data coaches must befriend their colleagues, build trust, foster relationships so that teachers will open up to them and try new things. For the most part, these two positions do not go hand-in-hand. Such a balancing act requires skills that only a few possess. I wondered how middle school teachers would view their data coach, who coordinated tests in the spring.

Going into this study, I believed that regardless of their feelings about their data coach, teachers would be examining data and considering instructional changes based on data. I
believed that data coaches were getting teachers to analyze data through scheduled meetings and teacher-friendly data reports. However, I also suspected that teachers were not implementing the changes once they were in the classroom. The influence of the data coach would have to be strong in order to convince teachers to change instruction. In other words, the data coach would have to convince the teachers to work harder to enhance student achievement. And when teachers sacrifice free time and their own money every day for students, the likelihood of a teacher working harder for someone else is small.

As I collected the data, I found that I could bracket my own concerns about teachers making decisions because I was not on my own campus or at a high school campus for that matter. As I analyzed the data, I compared my own presuppositions to what I was seeing in the data. I tested my theories of teachers’ fear of data, the teachers view of the role of the data coach, and whether teachers made instructional decisions based on data throughout the analysis process. I realized that my hunches were mostly correct: the data coach was leading teachers through making data-based decisions. However, how to get teachers to actually implement those teacher voiced changes in their classroom was still an anomaly.

As a result of the findings of this study, I have questioned my effectiveness as a high school data coach. I have groups of teachers who revel in data-based decision making, and I have groups who avoid it like the plague. I believe that they would continue on this path with or without a data coach. I keep going back to Killion and Bellamy’s (2001) data analyst. The key to that position was that they were a teaching peer, someone who was teaching while running reports, conducting conversations, and analyzing data. That key seems to be missing with the data coaches employed in our district. Although we were all once teacher peers, moving to an
office and organizing tests seems to negate that peer status. Because we cannot convince
teachers to change their practice, we must not be viewed as peers, as worthy advice-givers.
Therefore, we are less likely to convince teachers of the need to make data-based decisions
because we are not technically in the trenches with them. We are just another administrator
telling them to work harder.

At the risk of writing myself out of a job, I believe that districts should strive for data
analysts instead of data coaches. A lead teacher who is an expert in her field is a much more
powerful change agent than a general practitioner in an office. We can both present data and
facilitate conversations about data, but only one of us can make specific curriculum and
instructional suggestions that teachers can experiment with in order to improve student
achievement. Teachers may be much more open to the ideas of a peer, and they may be more
likely to actually try them out in the classroom.
REFERENCES


