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Supports That Facilitate Teacher Data Use in Schools

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Supports That Facilitate Teacher Data Use in Schools

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Treatise

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I dedicate this work to my parents, Gerald Kramer and Suzanne Kramer.

You model the true essence of loving your family as well as your students.

You lead by example, and I am challenged to impact children in the same manner.

I love you both and thank you for your support.

In loving memory of Wallace G. Bir, Sr.

He would have celebrated with us and brought a beautiful bouquet for the centerpiece. Perhaps, he is in heaven playing Monopoly and bragging about his oldest granddaughter.

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Supports That Facilitate Teacher Data Use in Schools

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This study examined supports that facilitate teacher data use in schools. The purpose of this work was to extend the base of knowledge of general supports for teacher data use, leadership supports for teacher data use, and technology supports for teacher data use. Three research questions guided the study to determine those supports necessary for teachers to be successful in data use: (a) What general data supports exist for teacher data use in schools, (b) what leadership supports exist for teacher data use in schools, and (c) what technology supports exist for teacher data use in schools?

A qualitative and quantitative data collection process with a single-case study approach included individual interviews, focus groups, and a survey instrument. The data from these components were coded, analyzed, and organized into themes and implications by implementing the 6-step constant-comparative model. This mixed-methods process provided a thorough evaluation of findings to answer the research questions.

Two implications were found during the study. First, structures and systems for data use must be intentional in order to support teacher data use in schools. Contributing to the intentionality is time for collaboration; professional development to build teacher capacity; and clearly aligned district vision, mission, and goals. Second, technology support in the classroom is integral to effective data use by teachers. This support manifests in hardware support and personnel support. Hardware includes having the appropriate system that maintains the students, timely access to data and a user-friendly format. Personnel support refers to the integration of technology into teaching and learning, teacher-to-teacher support, and an alleviation of distrust through positive interaction with data. Further analysis revealed implications for practice, including the importance of creating structures and developing a plan for data use.

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CHAPTER 1

INTRODUCTION

Data use is universal, and the legislation of the No Child Left Behind Act (NCLB; U.S. Department of Education, 2002) has been the catalyst for this movement. Even though accountability policies do not address teacher involvement in data-driven decision making, educators must base decisions on accurate and meaningful data about student learning and achievement (Johnson, 2002; Lachat, 2002; Lachat & Smith, 2005; Wayman & Stringfield, 2006). Teachers are affected by NCLB because they are expected to use data improve their teaching (Wayman, 2007; Wayman & Cho, 2008; Wayman, Midgley, & Stringfield, 2006). Ingram, Seashore Louis, and Schroeder (2004) addressed data use and assert:

For standards and accountability policies to be effective in changing the core technology of education—teaching and learning—schools must use accountability data to make decisions about whether they are meeting standards or not and, if not, then use data to change practices and monitor the effectiveness of those changes. Despite the pivotal role of data use in this and other current school improvement policies, there is little strong empirical evidence on how these policies affect practice. (p. 1259)

Unfortunately, many teachers are not prepared for such data use, and the NCLB legislation offers no support for them. Research has shown that several factors influence data use in schools (Armstrong & Anthes, 2001; Ingram et al., 2004; Lachat & Smith, 2005; Wayman, Cho, & Johnston, 2007). Lachat and Smith indicated that key factors include the types of data available to school staff, technology and data-system capacity, and school conditions and practices that either promote data use or act as a barrier to data use in schools.

Though considerable data are available for teachers, they often do not use the data effectively (Wayman et al., 2007; Wayman & Stringfield, 2005). Wayman et al. (2006) stated,

To read policy and news accounts, one might surmise that the mere act of providing student data is sufficient to create a school or district driven by this data. On the contrary, although many educators embrace the notion of becoming more reflective practitioners, few educators have the preparatory background to engage in such analysis and reflection. (p. 189)

In addition, teachers have significant concerns about the type of data and its purpose related to their professional performance (Ingram et al., 2004, Wayman et al., 2007). Often the data are not available in a user-friendly format (Wayman, 2007; Wayman & Cho, 2008; Wayman et al., 2007). The data also do not necessarily arrive to teachers in a timely manner (Wayman et al., 2007).

The issue of how to interpret the data becomes apparent. Who is to assist teachers with this feat? Some teachers want to use data and understand it. Others only want to use data that are a positive reflection of their teaching; others are concerned about what the data say about their colleagues (Ingram et al., 2004; Lachat & Smith, 2005). This concern often perpetuates a climate of mistrust (Ingram et al., 2004).

This support is falling to districts and school administrators, who are engaging in a myriad of initiatives to assist teachers. Consequently, administrators are being forced to think about the changes that must be implemented in schools (McLaughlin & Talbert, 2006; Sunderman, Orfield, & Kim, 2006; Wayman et al., 2007). Change becomes necessary in schools due to NCLB. Sunderman et al. suggested that NCLB affects many areas of the educational system, but gives no guidance on fostering school

improvement. They asserted that the lack of guidance has grave implications with regard to principals and teachers of low-achieving schools that are expected to produce massive gains every year for every student population. Most importantly, Sunderman et al. reported that teachers want the goals to be within reach and to be given the tools, incentives, and resources to bring about the change. This change manifests itself in the form of discussion and interest in data-driven decision making (Earl & Katz, 2006; Wayman & Stringfield, 2006; Wellman & Lipton, 2004).

The literature is beginning to describe what district personnel are doing, and therefore educators are beginning to talk sensibly about what types of supports work best for teacher data use. Datnow, Park, and Wohlstetter (2007) asserted, “Since the effectiveness of schools is being measured by performance indicators, it is not surprising that educators are now using data for improvement” (p. 10). Educators are faced with the difficult charge of absorbing the data they have about students and using such data to inform their practice. Boudett, City, and Murnane (2008) challenged educators with the following thoughts:

Choosing the more challenging path increases the chances that your school will use data to inspire teachers rather than burden them and to illuminate deep issues rather than amplify superficial ones. Ongoing conversations around data are an important way to increase staff capacity to both understand and carry out school improvement work, but it takes effort to make sure these conversations are productive. (p. 12)

Teachers are being required to use data, want to do so, yet feel unprepared to do so (Ronka, Lachat, Slaughter, & Meltzer, 2008; Wayman et al., 2007). In fact, it is imperative that teachers are involved in using data in their day-to-day function

(Wayman & Stringfield, 2006). Research continues to show that teachers will use data if it helps (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006).

Technology is a vehicle for providing data to teachers. When school leaders are serious about making decisions based on data, technology must be a primary consideration (Wayman, Stringfield, & Yakimowski, 2004). Baker (2005) suggested that technology promotes efficiency, expands validity, and improves quality in schools. It is necessary to support teachers in understanding and using this technology in the classroom (Lachat & Smith, 2005; Wayman, 2007; Wayman & Cho, 2008; Wayman et al., 2007; Wayman & Stringfield, 2006).

The past decade has involved doing more than merely collecting student data, but also utilizing these data to bring forth change in schools. With the increase of data collection in schools, it becomes necessary to organize and manage the data in a way that increases achievement for all students. School leaders need to look beyond NCLB requirements and move student data into the hands of the teachers (Wayman, 2005). Therefore, it is necessary to examine those supports that exist to support teacher data use in schools.

Statement of the Problem

Recent accountability policies have brought public attention to data about school performance. Teachers are consistently responding to these requirements as well as struggling with ways to use the data to improve their practice (Wayman, 2007; Wayman & Cho, 2008; Wayman et al., 2006). Supports are necessary in order to be

successful (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006).

It is necessary to study who supports teachers in data use and what supports are essential to affect student learning. Consequently, the purpose of this study was to examine supports for teacher data use. Examples of such supports include general supports for teacher data use in schools, leadership supports, and technology supports.

The following three research questions addressed understanding supports for teacher data use in schools:

1. What general data supports exist for teacher data use in schools?
2. What leadership supports exist for teacher data use in schools?
3. What technology supports exist for teacher data use in schools?

This study systematically analyzed who supported teacher data use in schools. It inquired into who assists teachers in general, who leads them, and who supports them technologically. It examined what teachers, principals, and district personnel say about data use in schools. It addressed uses of data, district culture and context, ways data are accessed, technology, data supports, leadership for data use, and data use weaknesses.

General supports, for the purpose of this research, included everything that was not leadership or technology support. Both leadership and technology warranted their own research question due to their vast necessity.

This examination of data use was accomplished through qualitative and quantitative data collection. Teachers, principals, and district personnel addressed those supports and needed supports for teachers. This was achieved through specific interview protocols, the Use and Perceptions of Educational Data Survey (Wayman &

Supovitz, 2007), and the School Culture Quality Survey (Borman & Associates, 2005). Through posing these questions to teachers, principals, and district personnel, this researcher was able to examine thoroughly the current state of data use in one district and to synthesize it into general implications for schools.

Context of Present Study

In 2007, the Natrona County School District (NCSD) commissioned a thorough, district-wide evaluation of data use. District and school culture, types of data used, the way data were used, how varied roles use data, structures and supports for using data, and technology were all considered.

NCSD is located in Casper, Wyoming, isolated from major metropolitan areas. The city has a population of 50,000 people and is the second largest in the state. The district is the second largest of the 48 school districts in the state (Wyoming Department of Education, 2008). Energy industry, including coal, oil, and minerals, drives the economy.

Wyoming is a rural state that serves 48 districts and 362 schools. Issues of adequate state capacity to serve schools and districts abound due to a small population and a lack of state and federal resources. Wyoming struggles in the following areas: (a) hiring and retaining highly qualified department staff, (b) availability of research-based products and services, (c) implementation of quality data systems in all districts, and (d) adequate technical assistance budgets (Wyoming Department of Education, 2008).

Adequate Yearly Progress requires accountability systems throughout the country to look at a single testing administration to determine the achievement level of student achievement. Wyoming utilizes the Proficiency Assessment for Wyoming Students (PAWS), which is developed by the Wyoming Department of Education in partnership with Harcourt Assessment. The PAWS focus on individual student growth and performance. Assessments include reading, writing, math and science. The PAWS include some high-level cognitive skills and enough items to measure a student's mastery skill. The results are typically returned to the schools within 1 month of testing.

In addition to the PAWS, NCSd implements the Northwest Evaluation Association (NWEA) Growth Assessment to measure student growth over time. This assessment measures growth in the areas of reading, math, and science.

The NCSd serves about 11,500 students from Casper and eight small, nearby towns. NCSd has 4 senior high schools, 7 middle or junior high schools, and 27 elementary schools. NCSd employs over 1,900 individuals, including 850 teachers. The district is fairly homogeneous and can be best described as a working-class community. The student population is composed of 88% White, 7% Hispanic, 2% African American, 1% Asian American, and 1% American Indian or Alaskan Native (Wyoming Department of Education, 2008). This distribution of students mirrors that across the state.

Qualitative data for the study were collected from interviews and focus groups of building-level, instructional staff from 22 campuses in the district, which included 80 participants. Also interviewed were 33 participants from central office and 15

participants outside these groups, including students and parents. The sample in the study included 128 total participants representing virtually every stakeholder in the district.

Interviews and focus groups were conducted in which members answered a specific protocol with regard to data use. The participants included personnel who were impacted or supported by data use. They included principals, assistant principals, counselors, teachers, and instructional facilitators. The interviews represented each of the members of the school community. The number of participants in these focus groups ranged from 3–5 and was selected from a randomly generated list of 7–10 teachers. The focus groups were conducted during a 4-day site visit to NCSD by the research team.

Quantitative data were collected through the use of a survey instrument that contained three sections: (a) a demographic section, (b) the Use and Perceptions of Educational Data Survey (Wayman & Supovitz, 2007), and (c) the School Culture Quality Survey (Borman & Associates, 2005). The survey was administered online to a total of 435 respondents. For the present study the responses from those participants at the campus level, including administrators, teachers, counselors, and facilitators, were analyzed ($N = 316$).

The Use and Perceptions of Educational Data Survey (Wayman & Supovitz, 2007) was a 45-item survey that evaluated attitudes toward data use, perceptions of district data quality, computer systems for accessing data, district plans for linking data and learning, district supports for using data, and specific ways data are used. The

survey also included an open-ended question that asked educators what additional data would be helpful to them and their specific use of current NCSD data systems.

The School Culture Survey was a 36-item survey that assessed the cultural dimensions of shared vision, facilitative leadership, teamwork, and learning community. This survey had proven reliability and validity in several other school district settings (Borman & Associates, 2005).

Limitations

Limitations of this mixed-method case study exist. This study consists of one school district; the single district is not compared to other school districts and is not necessarily representative of other school districts in the country. These limitations were recognized in the design of the study as well as in the reporting of data.

Delimitations

The current study delimits to the role of teachers in the data use process from the larger study previously described. Therefore, the data that were used were the data that provided information on teachers, whether from teachers themselves, principals, or district personnel.

The delimitations in this study were determined by a need to gain through knowledge about the supports that facilitate teacher data use in schools. The participants in the qualitative study included teachers, instructional facilitators, and principals. By studying teachers, administrators, and district personnel, the researcher was able to glean the supports for teachers through different perspectives. Participants

provided the information that answered the three research questions. It was essential to involve various stakeholders in the school district to examine who supports teachers to use data to improve student learning.

The participants in the quantitative data collection included only teacher responses ($n = 278$). The topic addressed in this research was specifically related to teachers; therefore, nonteacher responses to the survey questions did not answer the research questions related specifically to teachers.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

Data are essential in helping teachers diagnose student needs, and research continues to show that teachers will use data if such use helps their students and is properly supported (Chen, Heritage, & Lee, 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006; Young, 2006). Multiple factors influence data use in schools (Armstrong & Anthes, 2001; Ingram et al., 2004; Lachat & Smith, 2005; Wayman et al., 2007), but support is clearly critical. General supports manifest as a culture of inquiry, time and collaboration, instructional coaching, and professional development. Besides general supports (Lachat & Smith, 2005; Wayman & Stringfield, 2006), research suggests that leadership supports (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006) and technological supports (Lachat & Smith, 2005; Wayman, 2007; Wayman & Cho, 2008; Wayman et al., 2007; Wayman & Stringfield, 2006) are the most critical to apply. This review of literature will focus on supports for teacher data use in schools.

General Supports for Teacher Data Use

Recent literature has discussed the necessity for a variety of general supports for teacher data use (Boudett et al., 2008; Lachat & Smith, 2005; Love, 2000; Wayman et al., 2007; Wayman & Stringfield, 2006). These supports include a culture of inquiry, time and collaboration, instructional coaching, and professional development.

Culture of Inquiry

Research suggests that effective data use requires a culture that is driven by inquiry (Dynarski, 2008; Lachat & Smith, 2005; Ronka et al., 2008; Wayman & Stringfield, 2006). Earl and Katz (2002) stated, “Inquiry is, very simply, a way of finding things out—collecting data and interpreting evidence in ways that enhance and advance understanding” (p. 1010). Several steps can be made to create and sustain such a culture (Copland, 2003). When teachers are supported in moving inquiry into practice, inquiry becomes efficient and high yielding (Wayman et al., 2006; Wayman & Stringfield, 2006). Cycles of inquiry accelerate continuous growth and learning (Wellman & Lipton, 2004). Copland discussed the necessary conditions for inquiry and provided a framework in which leadership is distributed; suggestions included the need for a consensus, structure, and involvement.

Consensus

DuFour, DuFour, Eaker, and Many (2006) asserted that consensus is achieved when all points of view have been heard and the will of the group is evident, even to those who most oppose it. When a strong consensus is reached, problems facing the organization are clear and thus become a focus of all members of the team (Copland, 2003; Ingram et al., 2004). As members focus on what they want to achieve, they can begin to decide what questions they want to answer. They can identify the current level of student achievement, establish goals, and work together to achieve them (National Association of Elementary School Principals, 2008). Costa and Kallick (2008) discussed consensus as part of the process for bringing teachers together in learning

communities: “Leaders realize that humans grow intellectually through resolving differences, achieving consensus, and stretching to accommodate dissonance” (p. 280). Consensus continues to be the starting point for any form of data analysis by educational practitioners (Heritage & Yeagley, 2005).

Wayman et al. (2006) also discussed consensus for data use in terms of a process they called *calibration* and outlined a process critical for establishing a data-informed district. In this process Wayman et al. (2006) explored questions that stakeholders should ask, such as, “What should students learn” and “how will we know learning has happened?” (p. 196). Wayman et al. (2007) suggested that a school district engage in calibration in many ways. They suggested a tight focus on teaching and learning, driven by the four following questions:

1. What do we mean by learning and achievement?
2. How will we conduct and support teaching and learning?
3. How will we know teaching and learning when we see it?
4. What action will we take based on our results? (p. 42)

Wayman et al. (2007) suggested that school personnel should engage as a group consistently in such calibration activities and have a method for doing so. As teachers calibrate their thinking, they sharpen their skills and become more intentional and purposeful in their practice (Wayman et al., 2007). Wayman et al. (2006) found that data use was most effective when staff had access to data and then worked together to calibrate their expectations. Through this calibration, they reviewed student learning and expectations and subsequently participated in instructional decision making. This

process enabled teachers to identify areas of success, deficiency, and inconsistency in their practice (Wayman et al., 2007; Wayman et al., 2006).

Structure

When processes and structures are in place, a culture of inquiry can flourish. Structures serve as the intentional processes that drive inquiry. This cycle of inquiry involves several stages in order to effect school change. Copland (2003) discussed this cycle as identifying the problem based on data, refining the focus effort, identifying measurable goals, building a plan, taking action, and reflecting and analyzing results from data.

It is imperative to have structures in place in order to effectively implement a cycle of inquiry. Within these structures, data are routinely studied and used to make future decisions. It is important for educators not only to understand the structural framework, but also to be integral members of the creation of the structures. All members of the learning community must contribute to the creation of the framework (Wayman et al., 2007; Wayman et al., 2006). These communities of practice are based upon the cycle of inquiry (Copland, 2003; McLaughlin and Talbert, 2006; Wellman & Lipton, 2004). These expectations are set by the group and in turn adhered to by the groups. Structures within a culture of inquiry are building blocks in supporting teacher data use in schools.

Are schools ready to create these structural frameworks? The empirical research of Love (2000) demonstrated that schools do not have the tools necessary to monitor student progress, address issues, or target improvements. Love also suggested that

schools lack the organizational structures to utilize data effectively: “Despite the increased amounts of data available, many educators still feel ill prepared to analyze and use their school data effectively. They are data rich, but information poor” (p. 18). It is to this end that creating a structure for a culture of inquiry is necessary to support teacher data use.

Wayman et al. (2007) found no such structures in the evaluation they conducted in one school district. They recommended that the district establish formative data processes and provide training to be utilized in a manner that simplifies work for teachers. Additionally, Supovitz and Klein’s (2003) study found that although some teachers used data to inform their practice, there were few school-wide efforts in place to facilitate the process. Wayman et al. (2007) suggested that in this structure, data should support and improve the work of teachers.

Involvement

McLaughlin and Talbert (2006) discussed the importance of establishing a cycle of inquiry in sustaining school improvement and suggested that the cycle of inquiry be aligned with the overall school goals. Heritage and Yeagley (2005) also discussed alignment between expectations for students and assessment. As teachers progress through the cycle, they are involved in common goals and expectations.

Wellman and Lipton (2004) cast involvement in terms of data-driven dialogue and suggested that such dialogue is countercultural. They suggested a variety of reasons, including that teachers traditionally have not been collaborative problem solvers. They noted that teachers are burdened by other roles and responsibilities,

including administrative tasks, priorities, and responsibilities to parents and students. Understanding the barriers to teacher dialogue is crucial when implementing involvement to sustain a culture of inquiry.

Research has shown that teacher involvement in collaboration and data use is reciprocal. This reciprocity occurs as teachers work with data and gravitate toward each other. These data also provide a starting point for teacher conversations (Chen et al., 2005; Wayman et al., 2006). As teachers become involved in data use, they begin to change their views and attitudes toward educational practice and the effectiveness of their instruction (Armstrong & Anthes, 2001; Laird, 2006; Steele & Boudett, 2008). Boudett et al. (2008) discussed the importance of the collaborative work related to the coordination of such an effort:

Assembling a group of people, assigning responsibility for specific tasks, and planning how individuals will coordinate their efforts with each other and with the rest of the school helps send a message that using data in your school will be a collaborative effort. (pp. 13–14)

Time and Collaboration

Time and collaboration are data supports that are integral for teachers to be successful in instruction and are often intertwined. The National Association of Elementary Principals (2008) discussed creating a culture of collaboration:

Collaboration goes beyond camaraderie and even beyond cooperation. Many schools have congenial staff members who talk pleasantly with each other and share operational tasks within a school. Members of an effective learning community go farther, joining forces to create and implement a systematic process in which the principals and teachers work together to analyze and improve practice. In effective learning communities, meaningful and powerful dialogue transforms the school into a place of deep, collective learning and action, which lead to higher levels of performance. (p. 18)

Collaboration, as described above, is a process that requires dedicated time. Sunderman et al. (2006) reminded readers that time and the allocation of time for collaboration must be foremost in the minds of school leaders. Teachers need time to make connections with other teachers in which they share improvement strategies based upon the data (Datnow et al., 2007; Laird, 2006).

Teachers must be expected to work with their peers and be given the time to do so. Yet, they also must be assisted in using the time in a productive manner to reflect on their craft and develop a common vocabulary for discussing challenges and accomplishments (Jandris, 2001; Steele & Boudett, 2008). This is especially true in using data, where researchers consistently have challenged school leaders to allow teachers time for collaboration and planning (Chen et al., 2005; Lachat & Smith, 2005; Steele & Boudett, 2008; Wayman et al., 2006). Regarding time and collaboration, two areas are necessary to address: structure and collaborative educator teams.

Structure

It is important that time and collaboration for data use is directed, structured, and consistent. Collaboration has been purported to be both a facilitator and byproduct of data use (Chen et al., 2005; Wayman et al., 2006). Time for collaboration must be specifically structured for data use, and a plan must be established for teachers to follow. Lack of time is almost always cited as a barrier to teacher data use in schools (Ingram et al., 2004; Lachat & Smith, 2005; Marsh, Payne, & Hamilton, 2006).

When establishing structures for time and collaboration, teachers look to their principals for assistance. DuFour et al. (2006) suggested that it is disingenuous for

principals to stress the value of collaboration and then fail to provide time for it. In addition, Lachat and Smith (2005) noted that school leaders must recognize that collaborative inquiry necessitates sufficient time to allow for staff to have data-driven conversations. Leaders of teachers are faced with the task of melding time with a structural plan and balancing the two.

There are a variety of ways in which to manage the time. Time for collaboration comes in many forms during the course of a school day or year. Time can manifest as meetings during the school day, after the school day, or during staff development days. Time and collaboration can be valued by using in-service and faculty meeting times for learning. Steele and Boudett (2008) found, “Collaborative data use requires organized, accessible data and well-planned, smoothly facilitated meetings” (p. 57). Other researchers found that teachers can be given time to collaborate during their contractual work day, such as a common planning or preparation time for teachers or other restructuring by the principal (DuFour et al., 2006; Lachat & Smith, 2005; Wayman & Stringfield, 2006).

Research also has described data initiatives that are ineffective due to the structures not in place by campus leadership (Wayman et al., 2007; Young, 2006). Stringfield, Reynolds, and Schaffer (2001) found that such initiatives are unsustainable when they depend on the efforts of one or more individual. Wayman et al. (2007) noted, “While a data-informed district is characterized by strong leadership, it is also characterized by the establishment of structures, processes, and materials that enable the initiative to succeed independent of specific individuals or personalities” (p. 41).

These structures are essential as schools plan for time and collaboration for teacher data use.

Collaborative Educator Teams

Wayman et al. (2006) suggested focusing educators through collaborative educator teams. They asserted that teams of educators are able to build relationships with their peers. These relationships give teachers the power to work through the data and affect their teaching practices. It is only through widespread involvement among teachers and other faculty members that data initiatives become collaborative (Wayman et al., 2007; Wayman & Stringfield, 2006). When educators are part of collaborative teams, they feel valued and change occurs. Boudett et al. (2008) called for the importance of teamwork: “Even in cases where one person is willing to assume primary responsibility for data work, it is important that that person not work alone” (p. 13).

For example, Wayman (2005) stated that teachers make the most progress when they are reflective practitioners empowered through a variety of forms of collaboration. Through collaborative educator teams, teachers can reflect on data and change their practice. Teaching is best when teachers are reflective practitioners (Schön, 1987; Zeichner & Liston, 1996). Toll (2006) asserted that teaching is complex and that it is essential for teachers to be thinking about their craft deeply and carefully.

Wayman et al. (2007) stated that guidance and direction are paramount to the success of collaborative groups. They pointed to having structure in these groups, which includes frequent, intentional meetings. It is important to have meetings of the collaborative groups to follow up on the learning.

Another example of collaborative educational teams can be explored in learning communities. Research has shown that teachers who participate in learning communities specifically to look at data are likely to adjust their practice and generate more knowledge about their practice (National Association of Elementary School Principals, 2008; Wellman & Lipton, 2004). Chrispeels, Brown, and Castillo (2000) asserted that data use can be a strong predictor of effectiveness and efficiency in school improvement teams. They also found that the more teachers discuss data, the more they become involved and use data to inform their decisions. Thus, when teachers meet and dialogue, they become invested in their learning as well as that of their students. Schools are involving many in the process of looking at data (Boudett et al., 2008; Wayman & Stringfield, 2006). Collaborative educator teams provide a powerful support for teacher and student success.

Lachat and Smith (2005) cited empirical evidence confirming that the practice of collaboration with regard to data use is a potent strategy for building staff skills and focusing on student learning and results. While many think finding time is the difficult part of the equation, the difficulty actually lies in what to do with time once it is scheduled (Wayman et al., 2007). This scheduled time must be actively cultivated by school leaders for staff to engage in collaborative data use (Boudett et al., 2008; Steele & Boudett, 2008).

Instructional Coaching

The more global position of instructional coach becomes a data coach when working specifically on data use. Teachers may need sensitive coaching when

discussing data and linking it to instructional decision making (Bernhardt, 2004; Glickman, 2002). Data coaches provide schools with a common framework and vocabulary about the concepts of improvement in the classroom. They provide common tools, techniques, and understandings for teachers on how to look at data and use that analysis to adjust teaching practice strategically to better meet the needs of individual students or groups.

The data coach has various roles and responsibilities (Killion, 2008). Killion stated, “Coaches are the liaisons between research and practice, helping teachers learn to improve their practices in a reflective supportive setting” (¶ 2). The data coach can organize and analyze a school’s data as well as offer direct data use support to teachers and improve practice (Wayman et al., 2007). This coach supports teachers and administrators in using data to improve instruction on all levels.

A data coach can also be a resource provider, school leader, and catalyst for change. Using a data coach as a facilitator has been suggested as an effective strategy for providing professional development and building capacity in data teams’ knowledge of skills and assessments (Love, Stiles, Mundry, & DiRanna, 2008; Ronka et al., 2008). While it is important that data coaches be designated, it is also imperative that proper time and structure be given to them to facilitate assisting the teaching staff (Boudett & Steele, 2007; Lachat & Smith, 2004; Love et al., 2008).

Killion (2008) stated,

A coach as a school leader assists and serves on leadership teams within the school. He/she helps bridge the gaps between and among school programs,

remaining focused on the school goals. The coach helps align individual goals and school goals in a non-evaluative way. (¶ 8)

Additionally, a coach models and facilitates continuous improvement on the classroom and school levels. The coach asks questions and facilitates difficult conversations helping to shape the culture of the school. As a catalyst for change, the coach motivates teachers and encourages them to think outside the box by providing support (Killion, 2008). According to Killion, a coach helps teachers retain what they learn through practice and helps teacher transfer and synthesize their learning by assisting in planning ways to use the information in new setting.

Holcomb (2004) discussed data coaches who often do not have full teaching loads and are trained and have expertise in data use. They very often have technical skill and have established trust with their peers. Holcomb also found that many times these teachers found themselves in the position because they were strong with data.

Wayman et al. (2007) provided a framework for defining the position of a data coach. They suggested that during the first 3 years of a data initiative, coaches should use hands-on teaching about data use and assisting with access and turning data into information. Additionally, Wayman et al. (2007) asserted that teacher contact and involvement of faculties in data use are critical. Finally, they pointed out that persons in this position must be trained consistently throughout.

Wayman et al. (2007) also suggested phasing out data coaches by building capacity in teaching staff. They discussed phasing the work of coaches to teachers over time. Toll (2005) made the same suggestion with regard to literacy coaches. She said

the process is complicated, as many teachers may prefer the coach engage in the data collection process. Toll continued to address teacher data collection:

However, this is inappropriate because collecting and using data is an essential part of effective teaching, and teachers need to know how to do it themselves. Rather, the literacy coach should assist the teacher in planning for data collection and analyzing data. (p. 138)

Professional Development

English and Steffy (2001) discussed the necessity of creating a culture that supports a positive professional development community. They asserted that many school districts not only maintain the status quo, but also perpetuate it and as a result do not challenge their teachers. English and Steffy stated, “Once hired, teachers are expected to grow and develop, but the culture of the system does not make it clear that this is an expectation for every person employed, not a matter for a few that thrive on growth” (p. 82).

Teachers talking with one another helps improve their practice and simultaneously works on improving their schools (Jandris, 2001). This improvement of the teaching craft is supported through frequent discussions and activities focused on teaching practice (National Association of Elementary Principals, 2008; Schmoker, 2004). Ferguson (2006) discussed that too many initiatives are poorly supported with the necessary training to help teachers be successful.

In addition, Jandris (2001) suggested that when teachers know what works and what does not, they can figure out why and decide how to improve instruction. A

process of professional development is integral to impact student learning. Fullan (2005) noted,

Capacity building is not just workshops and professional development for all. It is the daily habit of *working together*, and you can't learn this from a workshop or course. You need to learn by doing it and having mechanisms for getting better at it on purpose. (p. 69)

Support for teacher data use must be ongoing through professional development. Professional development and capacity building intertwine to support teacher data use. A structured, purposeful, staff development plan is a necessary support for teacher data use, which inevitably should shorten a teacher's day (Wayman et al., 2007; Wayman & Stringfield, 2006).

Unfortunately, this area has had little empirical examination, but a few researchers have made helpful recommendations. Professional development for teacher data use should include all educators and be aligned with educational practice (Massell, 2001). Leaders should provide continuous professional development for teachers on how to use data as a tool (Laird, 2006). Armstrong and Anthes (2001) maintained that a structure for supporting and training teachers to do so is necessary for effective data use. Wayman et al. (2007) found that teachers wanted and needed more professional development in effective data use methods. Many of these same teachers felt unguided and in need of assistance.

Wayman (2005) asserted that large-scale professional development may not be an effective method to involve teachers in the use of new technology. Yet, guides and

resources are available for professional development with regard to data use (Bernhardt, 2004; Johnson, 2002; Wellman & Lipton, 2004).

Ongoing professional development with regard to data use is imperative. Wayman and Cho (2008) suggested that a comprehensive professional development plan be developed to include all aspects of educator decision making. Their work referred to implementation of a data system.

Rindone-Doughney (2003) made a suggestion for a professional development plan for a school district. Through data analysis, teachers must identify what students need to know, understand, and be able to do. Using the data, stakeholders can identify what teachers and administrators need to learn so they are able to help students achieve at a high level (Rindone-Doughney, 2003). The implementation of staff development produces intentional teacher practice, implementation, and craft refinement. Within the staff development framework, systematic reflection and feedback are critical. As teachers engage in self-analysis and analysis of student work, the overall goals of student achievement will be reached. Then, the cycle of staff development begins again (Rindone-Doughney, 2003).

Leadership Supports

Leadership supports need to be in place to facilitate teacher data use in schools. Administrators and school districts can give support to teachers to avoid overwhelming them in the process of data use (Lachat & Smith, 2005; Wayman & Stringfield, 2006; Wayman et al., 2007). These leadership supports have the potential to break up the

isolationistic mentality of educators. Schmoker (2006) reflected on his discussion with teachers:

When interviewing effective teachers, I'm impressed with how aware they are that isolation hides and protects ineffective practices and practitioners. And they privately lament the fact that their principals don't take a serious interest in what they teach or how well. (p. 25)

This support comes in many active forms. The leadership supports necessary for teacher data use are the integration of a clear vision and mission (Carter & Cunningham, 1997; Sergiovanni, 1996), sound structural framework (Copland, 2003; Lachat and Smith, 2005; Wayman et al., 2007), and positive culture (Bolman & Deal, 1991; DuFour et al., 2006; Schmoker, 2004; Sergiovanni, 1996).

Clear Vision and Mission

Leaders need to be clear in their vision and mission in the districts in which they serve. A common vision with specific goals about the business of educating children is important in any school district (Carter & Cunningham, 1997; Sergiovanni, 1996). Wayman et al. (2007) suggested that in promoting data use, it is important to have a clear, aligned, and supported vision for teaching and learning. Their empirical research showed a particular district in which the teachers were committed to data use but were hampered by the lack of a defined district vision and mission. The lack of alignment between the teachers and the district contributed to the lack of success as well as to growing teacher frustration. These educators also believed that their use of data would be more effective with a district-defined mission.

A way for leaders to include teachers in formulating a vision and mission is to recognize that teacher perspective, coupled with judgment and student interaction, is a form of data. Wayman and Stringfield (2006) called this contextual information integrated with other data sources “non-threatening triangulation of data” (p. 559). Boudett et al. (2008) described triangulation as a way to illuminate, confirm, or dispute what was learned through the initial analysis, which in turn assists in better accuracy and specificity. Through this triangulation of data, teachers and leaders can revisit the vision and mission routinely.

A way to ensure that these and all stakeholders are involved in the visioning is through a creation of a steering committee (Wayman & Conoly, 2006). Although there are different mechanisms for creating and aligning vision and mission, it is imperative that it occurs in a collaborative manner (National Association of Elementary School Principals, 2008; Wayman & Cho, 2008; Wayman et al., 2006). Leaders need to involve all stakeholders in developing goals and strategic plans (Johnson, 1996; Wayman & Stringfield, 2006; Yukl, 2006). As they discuss their vision with the people they serve, leaders should be open and honest. Their own use of data should be seen as they make decisions for the district.

Calibration is a critical process for leaders to build consensus for data use (Wayman et al., 2006). Wayman et al. (2007) suggested that a school district engage in calibration in many ways. They suggested that school personnel engage as a group consistently in such calibration activities and have a method for doing so. As teachers calibrate their thinking, they sharpen their skills and become more intentional and

purposeful in their practice (Wayman et al., 2007). Data use is most effective when staff have access to data and then work together to calibrate their expectations (Wayman et al., 2006).

If data are to become essential in school districts, then leaders must become active in their use of data and continue to use data to make decisions (Earl & Katz, 2002). Wayman & Stringfield (2006) found the importance of the principals' roles in a successful data initiative. Their clear vision and mission were evident as they supported teachers in their instruction and professional collaboration. Leaders actively can engage all members of the learning community in order to create a climate conducive to data-driven decision making.

Sound Structural Framework

A sound structural framework is a way in which leadership can provide supports to teachers for data use. This usable framework should be created and involve all participants in the data learning process as well as in the creation of the process (Wayman & Stringfield, 2006).

When creating this structural framework, technology should be integrated into everyday practice (Wayman et al., 2007). The structures that leaders enact and create give teachers the power to implement data use successfully. A sound framework gives the power of a plan to schools. A framework can provide for involving entire faculties in the use of computer systems to integrate and explore student data. It is imperative to involve everyone in the creation of these structures (Copland, 2003; Wayman et al., 2007).

Several structural frameworks are seen in the research. Lachat and Smith (2005) discussed a collaborative structure. Within their framework they included several factors. They discussed the need for staff access to timely data, the capacity for data disaggregation, and leadership structures that support school-wide use of data. These factors provide the structure for educators to engage in collaboration. When given timely access to data and the ability to dissect the data, teachers are empowered by leadership structures that were created for the purpose of data use.

Wayman and Stringfield (2006) worked with a school that was structured so that data were used in every decision made. Within the structure for decision making, leaders looked to and interpreted data each time they followed the process.

Another example of a structure is distributed leadership. Copland (2003) emphasized that distributed leadership in the form of collaborative inquiry is one manner in which school leaders can encourage data use through collaboration. Copland continued by describing distributed leadership as involving sharing the task, responsibility, and power among the traditional roles in schools. This distribution of leadership opens the boundaries within the school environment. School leaders must place structures and supports for creating a collaborative and professional culture.

A structural framework is also seen in Marzano's research. Marzano, Waters, and McNulty (2005) discussed a plan for effective school leadership through a structural framework:

1. Develop a strong leadership team.
2. Distribute some responsibilities throughout the leadership team.
3. Select the right work.

4. Identify the order of the magnitude implied by the selected work.
5. Match the management style to the order of magnitude of the change initiative. (p. 98)

The important piece is that a sound structural framework exists in which the work is valued and the leader is highly involved in the process.

Positive Culture

The importance of a positive culture in regard to data use was discussed previously; leadership literature has provided guidance and knowledge for leaders looking to establish a positive culture. Sergiovanni (1996), Schmoker (2004), and DuFour et al. (2006) have emphasized the importance of collaboration or community building on creating a positive school climate and culture. They discussed establishing and maintaining a vibrant school climate and collaborative working environment. Yukl (2006) noted that leaders should believe in working closely with appropriate school personnel to ensure an atmosphere that provides meaningful opportunities for achievement, enrichment, and future development for all individuals involved in the education of the students.

According to Deal and Peterson (1999), a positive culture also reflects a set of values and norms that are productive, connected, and aligned to the core vision and mission. Through this positive culture, leaders can better support teachers.

Bolman and Deal (1991) discussed the balance between leadership and management. They suggested that a positive school culture exists when this balance exists. Within this balance leaders can give the necessary supports to teachers. School leaders should move beyond quick fixes for their organizations and become data

informed through continuous improvement. A positive culture makes it easier to delve into data and in turn make the right decisions for students.

A positive school culture is essential as a leadership support for teacher data use. Leaders not only must model use of data, but also must establish conditions in which they support and encourage teachers to grow (Wayman, 2005). Armstrong and Anthes (2001) found that several elements were associated with effective data use: strong leadership, a culture that supports data use, a structure for training and supporting teachers, individual student academic performance, and a process for school improvement. Teachers respond when school leaders create a positive climate in which they make an effort to collaborate with teachers (Supovitz & Klein, 2003; Wayman & Stringfield, 2006).

This culture is important, as principals often face faculty resistance due to data initiatives causing a change in school culture (Ingram et al., 2004). Within these cultures, personal and professional relationships also may impede opportunity for growth (Wayman et al., 2006).

Technology Supports

Technology is the vehicle for aligning and utilizing data as well as guiding instructional decisions. Technology promotes efficiency, expands validity, and improves quality in schools (Baker, 2005). The process for accomplishing this makes an impact on the teacher in the classroom. Teachers need support in understanding and using this technology in the classroom (Lachat & Smith, 2005; Wayman, 2007;

Wayman & Cho, 2008; Wayman et al., 2007; Wayman & Stringfield, 2006).

Technology must be an early, if not first, consideration when schools are serious about implementing data-driven practices (Wayman et al., 2004). In order to provide technology supports for teachers, school personnel must recognize the types of data systems, understand how teachers use data systems, and understand teacher attitudes toward technology.

Types of Data Systems

Technology usually takes the form of student data systems that deliver data to educators in a user-friendly manner (Datnow et al., 2007; Wayman et al., 2004).

Datnow et al. stated, “Investing in a user-friendly data management system is among the most important actions a school system can take in becoming more data-driven” (p. 31). They pointed to the usefulness of school-level reports that were timely and functional. Wayman (2007) described three main types of student data systems: (a) student information systems that provide real-time accounting of daily school function (attendance or schedules), (b) assessment systems that rapidly organize and analyze benchmark assessments, and (c) data warehousing systems that provide access to historical data of all types and link disparate databases.

Student information systems can provide real-time accounting of daily school function (Wayman, 2005, 2007; Wayman et al., 2004). This use of technology provides what Baker (2005) called “a means to improve performance and productivity” (p. 358). School personnel are able to utilize technology to improve record keeping and increase the possibility of clean data (Wayman et al., 2007).

Assessment systems can rapidly organize and analyze benchmark assessments (Wayman, 2005, 2007; Wayman et al., 2004). Datnow et al. (2007) found 3 out of 4 schools in their study had data management systems that permitted them to run reports and display results from state, formative, and summative assessments. Datnow et al. stated,

Timely and useful reports of student achievement data on benchmarks and other assessments were all integral parts of an effective data management system, particularly for teachers and school site leaders. The most useful reports at the school level were those that quickly identified the students who needed extra help, and specified in which particular areas or on which learning standards help was needed. (p. 31)

Data warehousing systems provide access to historical data of all types and link disparate databases (Wayman, 2005, 2007; Wayman et al., 2004). They are complex systems that are usually located at the district, region, or state level; most importantly, they link the school or district's databases (McLeod, 2005). Data warehousing applications can assist in providing data disaggregation that is critical for data use in school (Mieles & Foley, 2005; Wayman et al., 2007; Wayman et al., 2004).

Wayman et al. (2007) suggested a school district buy a data warehouse, which would alleviate the teacher frustration with disparate data across the district. This warehouse would provide seamless access to all the data in one location (Mieles & Foley, 2005; Wayman, 2007; Wayman et al., 2004).

In data systems, features such as query tools, remote access, and graphics are significant in supporting educational inquiry (Wayman, 2007). Within the diverse roles of school personnel, query tools are able to differentiate according to the needs and

purpose of the user (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006).

How Teachers Use Data Systems

As technology continues to be integral in schools, supports are necessary to assist teachers. Lachat and Smith (2005) asserted, “Teachers need to learn how to obtain and manage data, ask good questions, accurately analyze data, and apply data results appropriately and ethically” (p.336). Additionally, teachers want instant feedback on student learning (Supovitz & Klein, 2003; Wayman & Stringfield, 2006). Implementation of data systems has the capacity to empower teacher conversations about data (Wayman & Stringfield, 2006).

Currently in schools a variety of data systems are available for teachers, not all of which are necessarily efficient (Wayman et al., 2007; Wayman et al., 2004). Data systems can help teachers receive information in a timely manner as well as improve teaching practices (National Association of Elementary School Principals, 2008). Some teachers are effective in the use of a district data system. Other teachers depend on other people to support them in their acquisition of data (Wayman et al., 2007). Barriers and involvement play a significant role as teachers struggle to utilize technology in schools.

Barriers

Research has suggested that initially teachers may resist data use (Ingram et al., 2004). Teachers struggle with technology when the system is inadequate or they are not able to manipulate the system. Wayman and Stringfield (2006) found problems with

data systems and lack of preparation to be barriers to teachers' data use in schools. Processes and procedures can become barriers to technology supports. In their evaluation of a school district, Wayman et al. (2007) discovered that issues arise when only one or two people are the keepers of data and provide printouts to the teachers. Often these printouts are cumbersome and mean little to the teachers who trying to interpret them. In their study, a few people held the power to print the reports, which made it difficult to access data in a timely manner. They also found that many teachers wanted to be able to access data immediately via technology and did not want to have to wait for a printout copy.

Barriers also exist when teachers find themselves overburdened by system use. Often, they have not participated in the appropriate professional development and have not learned how to interpret the data. Professional development for teachers on how to use data as a tool, as well as supporting them in doing so, is essential for supporting teachers in using data systems (Armstrong & Anthes, 2001; Laird, 2006). Teachers want and need professional development to support them in effective use of data (Wayman et al., 2007).

Data quality also can be a barrier to supporting technology. Ronka et al. (2008) stated that to ensure data quality, schools must utilize technology that supports data disaggregation, provides data access, and generates useful data displays. Additional researchers studying school reform have referred to the capacity for data disaggregation as a necessity to effective data use (Holcomb, 2004; Johnson, 2002; Love, 2000). Another barrier can occur in districts with numerous data systems, as the technology to

manipulate and integrate the different systems continues to be lacking (Wayman et al., 2004).

It is necessary to strike a balance when utilizing data systems. It is also best when these data obtained by teachers are structured in a user-friendly manner that allows easy access to all available student data (Earl & Katz, 2002; Wayman, 2004, 2007). Providing easy access to the data is an important function of a data system (Chen et al., 2005; Wayman, 2007; Wayman et al., 2004). A barrier exists when there is a lack of access to technology (Supovitz & Klein, 2003).

Involvement

Researchers have shown a variety of ways in which teachers can become involved in data initiatives. In addition to the acquisition of data, struggles abound with the meaning of the data. This meaning becomes clearer when teachers are involved and invested in the process of learning about data. As members of these initiatives, teachers are able to gain knowledge that then translates into student improvement (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006). Researchers have proposed that the most effective data use occurs when all teachers are involved in the initiative (Wayman, 2005; Wayman et al., 2004). Boudett et al. (2008) advocated teacher involvement in ongoing data conversations as a way to increase teacher capacity and school improvement.

When implementing data systems in a comprehensive manner, Wayman and Stringfield (2006) found that teachers had a greater sense of data use efficiency. These teachers also discussed being better at facilitating student needs and adjusting practices

according to the data. Teachers stated that such systems assisted them in collaborating with peers in a purposeful manner in both formal and informal settings. This occurs because supports are in place to guide teachers in their data use.

Teacher Attitudes Toward Technology

Another data support for teachers in using technology lies in the perpetuation of attitude regarding technology and data use. Teachers should be able to trust that the data they receive about their students is correct. Districts need to have procedures in place that ensure that data are clean (Ronka et al., 2008; Wayman et al., 2007), because teachers will become frustrated with data they perceive to be wrong. Thus, the usefulness of data must not be undermined by inconsistencies in a system.

Teachers who have negative experiences with data are less likely to continue to utilize data. On the other hand, teachers who are not initially interested in data use often become its champions when data are relevant and useful to them (Lachat & Smith, 2005; Wayman & Stringfield, 2006). When this happens, teachers see the value in using data and the ease in accessibility, which in turn creates a positive and meaningful experience for them. Teachers will use data if it is helpful (Lachat & Smith, 2005; Wayman & Stringfield, 2006). Others only want to use it if it is a positive reflection on the teaching occurring in the school (Ingram et al., 2004; Lachat & Smith, 2005).

A way to make data accessible is through implementation of good data analysis software (Wayman et al., 2007; Wayman & Stringfield, 2006). Data-warehousing applications offer the ability to disaggregate student data in a meaningful way (Mieles & Foley, 2005; Wayman et al., 2007; Wayman et al., 2004). The analysis must be clear

and concise and must have meaning. Often, teachers assume that data are poor or inconclusive. Good communication about the data will increase the likelihood of sustainability. School leaders should provide the support to teachers in order to do so.

Teacher attitudes are likely to be positive when they are properly supported. Some schools have designated staff members or teams responsible for supporting the system; these local experts are the ones the teachers turn to first (Datnow et al., 2007). Wade (2001) asserted that as many teachers as possible are necessary to support effective data use in schools. Buhle and Blachowicz (2008) were adamant about their experience with the role of the coach in supporting teachers:

It is naïve to believe that teachers will use assessment to inform instruction without the coaching and support they need to begin the process. Teachers here had two separate silos of knowledge for their assessment data and their curriculum and instructional plans. Fortunately, both districts provided coaches who helped teachers begin the conversation that could build bridges between data and instruction. (p. 45)

Using a data coach as a catalyst for change is an effective strategy for providing professional development and building capacity in data teams' knowledge of skills and assessments (Love et al., 2008; Ronka et al., 2008). While it is important to utilize data coaches, it is also crucial that proper time and structure be given to them to assist the teachers (Boudett & Steele, 2007; Lachat & Smith, 2004; Love et al., 2008).

Regardless of support, teacher attitudes about data and technology are based on their experiences. They are expected to use data, want to do so, yet are not prepared (Ronka et al., 2008; Wayman et al., 2007). Wayman and Stringfield (2006) stated that it is imperative that teachers are involved in using data in their day-to-day function.

Perhaps over time, this teacher knowledge of data will improve teacher attitudes about technology.

CHAPTER 3

METHODOLOGY

Purpose of the Study

This study addressed understanding the supports for teacher data use in schools. This methodology chapter has five sections: (a) Research Design, (b) Setting, (c) Data Collection, (d) Measures, and (e) Data Analysis. The study investigated the following three research questions:

1. What general data supports exist for teacher data use in schools?
2. What leadership supports exist for teacher data use in schools?
3. What technology supports exist for teacher data use in schools?

Research Design

The present study was an evaluative case study of one school district's use of data throughout the system. This was a mixed-methods case study utilizing both qualitative and quantitative research methods. Mixed-methods design includes qualitative and quantitative qualities in the design, collection of data, and analysis process (Teddlie & Tashakkori, 1998). Mertens (2005) referred to this method as the pragmatic, parallel, mixed-methods design whereby both data collections occur at the same time. The mixed methodology would prove to be both meaningful and insightful as the data were analyzed.

A case study describes and explores an event, activity, or process that is contained by the time period and the activity (Creswell, 2003). Case study research

requires recombining the evidence to address the initial purpose of the study by examining, categorizing, tabulating, and testing the data. It allows the researcher to focus on a specific topic of interest.

Data Collection

Qualitative Data Collection

Qualitative data were collected from interviews and focus groups of building-level, instructional staff from 22 campuses in the district, which included 80 participants. Also interviewed were 33 participants from central office. The sample in the study included 113 total participants representing virtually every stakeholder in the district.

The interviews and focus groups answered a semistructured protocol specific to the group (see Appendixes A–C). Interviews were conducted in person and by telephone. All dialogue was recorded with the permission of the participants.

Included in the interviews and focus groups were instructional staff from 22 campuses in the district, which included 80 participants. Also interviewed were 33 participants from central office. The number of participants in these focus groups ranged from 3–5. The focus groups were divided specifically into two distinct groups and were conducted in person. One group was comprised of the administrative team, including principal, assistant principal, and leaders selected by the principal. The other focus group was comprised of only teachers and, in some cases, counselors but always devoid of a campus administrator. Teachers for focus groups were selected by the

principal from a list of 7–10 teachers. The focus groups were conducted during the 4-day site visit to NCSD by the research team. The semistructured focus group protocol (see Appendix C) focused on the following questions:

1. What are the most exciting things happening in NCSD right now?
2. How do you interact with NCSD data in your job?
3. What specific types of data do you access or use in your building?
4. What computer systems do you use for accessing data?
5. Who leads the faculty in data use?
6. Is there a district vision for student learning?

The larger study focus groups and interviews included other district stakeholders who participated in an interview protocol customized to their role in the school district. For example, the Principal Protocol (Appendix B) asked specifically how the principal led faculty in data use, as well as who supported them in this endeavor. The principal semistructured protocol focused on the following questions:

1. What are the most exciting things happening in NCSD right now?
2. How do you interact with NCSD data in your job?
3. What specific types of data do you access or use in your building?
4. What computer systems do you use for accessing data?
5. Do *you* and *your teachers* get enough professional development?
6. How do you lead your faculty in data use?
7. In your perfect world, how would you and your school use data?
8. Is there a district vision for student learning?

Quantitative Data Collection

The survey instrument contained the following three sections: (a) a demographic section, (b) the Use and Perceptions of Educational Data Survey (Wayman & Supovitz, 2007), and (c) the School Culture Quality Survey (Borman & Associates, 2005). The survey was administered online to a total of 435 respondents. For the present study the responses from 278 teachers were analyzed.

The Use and Perceptions of Educational Data Survey (Wayman & Supovitz, 2007) is a 45-item survey that evaluates attitudes toward data use, perceptions of district data quality, computer systems for accessing data, district plans for linking data and learning, district supports for using data, and specific ways data are used. The survey also includes an open-ended question that asks educators what additional data would be helpful to them and their specific use of current NCSD data systems.

The School Culture Survey is a 36-item survey that assesses the cultural dimensions of shared vision, facilitative leadership, teamwork, and learning community. This survey has demonstrated reliability and validity in several other school district settings (Borman & Associates, 2005).

Measures

Quantitative measures were generated from individual items from the online survey. Categories for comparison were taken from the demographic section, individual items measuring data use were taken from the Use and Perceptions of Educational Data

Survey, and individual items related to school culture were taken from the School Culture Quality Survey.

Individual items on the Use and Perceptions of Educational Data Survey were set on a 4-point Likert scale with response categories appropriate to the nature of the question (e.g., *strongly disagree*, *somewhat disagree*, *somewhat agree*, *strongly agree*). This particular section of the survey has been reported previously by Wayman et al. (2007). The following 12 survey items were investigated:

1. I am adequately prepared to use data.
2. I am adequately supported in the effective use of data.
3. I am given enough time to use data effectively
4. My district provides useful professional development opportunities to help me learn more about how to use data.
5. There is someone I can go to who can answer my questions about using data.
6. I collaborate frequently with the other educators about data and how it relates to the learning needs of students.
7. I would like to collaborate more with other educators about the use of student data.
8. There are clear goals and structures for teaching and learning in my district.
9. There is a clear vision for the use of data to inform education in my district.
10. I have the proper technology to efficiently examine data.
11. The computer systems (for data use) in my district are user friendly.

12. The computer systems in my district provide me access to lots of data.

The School Culture Quality Survey items were set on a 5-point Likert scale with response categories of *never*, *rarely*, *sometimes*, *often*, and *always*. This section of the survey instrument has been documented as reliable and valid in a variety of school district settings (Borman & Associates, 2005). Individual items from the survey included the following two:

- 1 Administrators at my school do all they can do to facilitate the work of the faculty and staff.
- 2 At my school administrators and teachers work together to develop goals and values that guide us.

Data Analysis

The constant-comparative model was the guiding measure for qualitative data analysis (Merriam, 1998; Patton, 1990; Willis, 2007). Willis explained five recursive steps in this model:

1. Start data collection.
2. Organize the data into units.
3. Develop categories.
4. Look for links and relationships between the categories.
5. Develop broader explanations from the categories.
6. Repeat the process. (p. 207)

Research Question 1: General Data Supports

What general data supports exist for teacher data use in schools? In order to answer the first research question, evidence from both qualitative and quantitative data collection tools was necessary. Qualitative data were analyzed by examining responses

from teachers, principals, instructional facilitators, school administrative teams, and central office administrators. Examining these data included determining what supports existed and what supports did not; in other words, what supports helped teachers survive and to make data use work. It was anticipated that a number of themes would emerge relevant to general data supports available for teachers, including a culture of data use, data supports in schools, barriers and facilitators to data use, general school context and culture, and personal perceptions of data use. Other themes might emerge from data indirectly related to support; for example, hearing about what data teachers use gives a context for who supports them in the process.

The quantitative data analysis was conducted by examining individual survey items of 278 teacher respondents from the Use and Perceptions of Educational Data Survey. Means, standard deviation, and 95% confidence intervals were constructed for each. These results were triangulated with the qualitative data in order to obtain a whole picture of the district.

Research Question 2: Leadership Supports

What leadership supports exist for teacher data use in schools? In order to answer the second research question, evidence from both qualitative and quantitative data collection tools was necessary. Qualitative data were analyzed by examining responses from teachers, principals, instructional facilitators, school administrative teams, and central office administrators. It was anticipated that a number of themes would emerge relevant to leadership supports that influence teacher data use, including a culture of data use, data supports in schools, barriers and facilitators to data use, and

general school context and culture. Other themes might emerge from data indirectly related to support; for example, hearing about what data teachers use gives a context for what leadership supports assist them in the process.

The quantitative data analysis was conducted by examining individual items from the Use and Perceptions of Educational Data Survey as well as individual survey items from the School Culture Survey. Means, standard deviation, and 95% confidence intervals were constructed for each. These results from 278 teacher respondents were triangulated with the qualitative data in order to obtain a whole leadership picture of the district.

Research Question 3: Technology Supports

What technology supports exist for teacher data use in schools? In order to answer the third research question, evidence from both qualitative and quantitative data collection tools was necessary. Qualitative data were analyzed by examining responses from teachers, principals, instructional facilitators, school administrative teams, and central office administrators. It was anticipated that a number of themes would emerge relevant to technology supports that influence teacher data use, including a culture of data use, data supports in schools, elements desired in a data system, data use strengths and weaknesses, and data use components needed in NCSD's future. Other themes might emerge from data indirectly related to support; for example, hearing about what technology teachers use gives a context for what supports assist them in the process.

The quantitative data analysis was conducted by examining individual survey items from the Use and Perceptions of Educational Data Survey. Means, standard

deviation, and 95% confidence intervals were constructed for each. These results of the 278 teacher respondents were triangulated with the qualitative data in order to obtain a whole picture of technology supports for teacher data use in the district.

CHAPTER 4

RESULTS

The current study focuses on supports that facilitate teacher data use in schools. The data in this chapter are reported and grouped according to three research questions. Within each research question, both qualitative and quantitative data are described in detail. The three research questions that were addressed are the following:

1. What general data supports exist for teacher data use in schools?
2. What leadership supports exist for teacher data use in schools?
3. What technology supports exist for teacher data use in schools?

Research Question 1: General Data Supports for Teacher Data Use

Qualitative Data

The general supports for teacher data use were categorized into two areas: campus supports and district supports. Campus supports include all supports within the school community. District supports are defined as those supports provided by the district. Within these two areas both similar and different themes emerged.

Campus Supports for Teachers

The campus supports for teachers were reported by three categories of respondents: (a) teachers, (b) principals, and (c) district personnel. All data collected from these respondents referred to the supports that existed for teachers. Teachers reported more on the campus supports and structures that existed in each school than their principal and district counterparts. Teachers, principals, and district personnel

reported about instructional facilitators. Teachers and principals discussed common themes of professional development and concerns with data use. Teachers also reported collaboration and lack of time in schools.

Campus data supports reported by teachers. Teachers reported some campus data supports and provided suggestions for those supports they would like to have. Collaboration, lack of time, teacher leaders, and professional development were the prevalent themes with regard to campus data supports for teacher data use.

Teachers discussed several forms of collaboration that occurred through a variety of team meetings, focus meetings, and faculty meetings. Teachers stated the topic of data was discussed in many of their faculty meetings, in addition to their weekly and monthly team meetings. Many teachers discussed days set aside for collaboration. One stated, “Once a month, we have a day, which is set aside for teacher collaboration or looking at data or learning about PLC [professional learning communities].” Others expressed an interest in doing a better job of collaborating with their peers. One teacher suggested that teachers seek out a support system from other teachers and that a system in which to do this would improve the process. Teachers had many comments regarding the collaborative process. One stated, “Teachers are learning the difference between planning and collaboration.” Another said,

I think that it has helped that we put the agenda out ahead of time and the teams, your collaboration teams, talk about what you want to see from your team and then everybody, then the teams get together and talk about it, so if they, first you find out what the issues are, then you talk about it, then you bring it back to the steering committee.

One teacher observed,

Our building has taken on the Professional Learning Community by Learning Tree, and the majority of our building is very into and willing to follow and learn collaborative works and looking at data appropriately and that kind of thing.

Finally, a teacher stated, “Well, we sit down as a group focus meeting, we do that as a group thing. And, that’s when we look at the data.”

While teachers reported many collaborative supports, they also noted a lack of time, especially the right kind of time. One teacher stated that a traditional planning time remains in the schools, and they need to learn to utilize the time more efficiently.

Another teacher wished for time for collaboration:

Another thing we’re doing with professional development is we’re collaborating with schools here in town who are using some of the new programs too, so that part of the work is cut out because several schools are using it.

When asked about what is hard or easy about data use, a principal responded,

I think, for one thing, finding the time. The collaboration time to sit down and really reflect on it, examine it, figure out what it means. Some teachers just kind of take that on their own and go with it. Other teachers probably need more assistance with that, and we just don’t have the time to sit down with them and explain that to them.

General use of time and allotted time for collaboration were consistently discussed, although there were differing levels of use and commitment depending on the school.

When asked about what support they need for data use, one teacher stated, “Time and staff development. How to interpret those and use them, you know, more effectively.”

Teachers also noted various teacher leaders and coaches that help with the data process on their campuses. Teachers relied on the supports of instructional facilitators, reading specialists, school improvement chairs, team leaders, and each other in their

daily data use. About half of the teachers mentioned instructional facilitators, and some of those only did so with prompting from the interviewer. Another teacher remarked about her Instructional facilitator, “I could probably get online, but our instructional facilitator gives it [the data] to us.” Another teacher described his instructional facilitator when asked about who supports him with data use:

Mainly our instructional facilitator. I think it is sort of more of collecting it, putting it in some format so we can access it in our rooms, but I know when I look at it, it’s just me going out and looking for stuff.

Another teacher commented on an instructional facilitator:

It’s good that our facilitators were the ones this year who pulled up the old PAWS questions and got them to us. They were the ones that kind of coordinated the goals we were supposed to reach on growth assessments and that was really helpful. I think as far as some of the other things, I think they are still in the learning stage and there’s a lot of other ways that can be used that they’re not being used.

Another teacher offered,

We have what is called an instructional facilitator, and she helps us analyze the results and she helps us get them up. And that’s who spent all the hours getting them up when it was taking so long, and I gave up. She just did it.

An instructional facilitator who participated in a teacher focus group said, “At the beginning of the year we decide—because I also tutor—we just look at all the data, test data, and we decide what kids we’re going to serve in small groups.”

The instructional facilitator focus groups addressed the work they did to support the campuses. Instructional facilitators generated various reports for their campuses. One stated, “We also put information together by class so teachers had that and another piece of data that we’ve used is looking at failure rate based on classroom grades and now printing out grades for a quarter.” They also discussed how they served as internal

supports for the teachers as they engage in focus group activities. “We also do focus groups for our school, I believe it’s once a quarter and we go through every child in the school.” Through these reports, they are able to give teachers support interpreting them. An instructional facilitator stated, “I guess we look at more of our school data and I guess I have been working on our teachers to change students . . . strategies, and modeling lessons and working into affect growth in their student.”

Instructional facilitators also discussed feeling overwhelmed with their position in addition to the lack of crucial data available. One facilitator expressed it clearly, “It’s like every time you meet, there is something else assigned to us. I feel overwhelmed.” The data they are lacking is an issue as well.

One thing I see about data I see is what data we don’t have. Our business is a very hard to quantify business and my frustration with the data is we collect data on what’s easily measured . . . skills and knowledge.

Another instructional facilitator discussed the data: “So basically we’re giving assessments, we’re sending the data to central office, and the teachers are not seeing a connection.” Another observed, “In a perfect world wouldn’t it be great if you take the data to the teacher and say, ‘This is where your class is and this is what you need to learn.’”

Many teachers discussed using their data support person to assist them with obtaining and understanding student data by leading them in various meetings as well as in providing paper reports. Support persons had titles such as reading specialist, school improvement chair, and team leader. A few teachers reported being supported by teachers serving in these capacities. One teacher stated, “We have a reading

specialist in our school. When she gives mini-workshops I try to go and always try to learn just one new thing.” Others discussed meeting with these people to discuss data and their students.

A need for professional development with regard to data use was a consistent theme in almost all of the interviews. One teacher stated,

I think we could use some professional development in just how to look at data, how to interpret it, how to tell the difference between what’s valid and what’s not because we can’t just look at everything that comes down and say, “Those numbers are good.”

Another teacher stated, “We need staff development.” Some teachers suggested that increased professional development could assist with rectifying the blame and distrust with regard to data in general:

I guess I kind of worry about the staff through all this data collection. The thing that I find troubling is that we are comparing ourselves with each other. We compare ourselves with other buildings in our district. I worry about the morale of the staff in trying to do what’s best for kids so to speak. I think our buildings depend on those scores being where they need to be. Our colleagues are under a great deal of pressure. I’ve seen feelings get hurt this year more than I ever have seen before. That concerns me. I mean are we really making the progress we want to make and leaving our teachers behind?

Responses suggested a sense that data were not necessarily useful. For example, one participant stated, “I’ve worked with people too who have been prejudiced by the scores. You know, so sometimes I’m not sure that the scores have importance.”

Another said, “Our results were very questionable. It took an extremely long time to get them.” Another commented, “One thing about the growth assessments is some kids are good guessers. And, we have student here with a very low IQ that scored very high, because she was a good guesser that day.” Another teacher stated, “I am thinking, yeah,

everybody can take this data and interpret it in whatever way they want to go.” Finally, one said,

You know, there’s a lot of data out there and, like you said, there’s so much that you just judge your own instincts of what’s going on in your own classroom because it becomes sort of like, well, it becomes overwhelming.

Other teachers reported on interpreting data for themselves and creating their own databases and worksheets for interpretation. One stated,

Some of it is individual—what you chose to do with data. At the start when I plotted all my PAWS scores on my spreadsheet and looked at all my students; that was me. It wasn’t directed by the administration. It wasn’t directed by our department. It was me who said I need to know this because I am going to have hard kids this year.

Campus data supports for teachers reported by principals. Principals reported campus data supports that exist for teachers in schools. Among the existing themes of support are instructional facilitators and professional development. Concerns over data use were also discussed.

Almost all principals discussed teachers being supported by the instructional facilitators. One principal stated, “We’re able to put instructional facilitators and really quality people in front of groups of kids to try to improve student achievement. That’s very exciting to me.” Another principal discussed the advantage of having two instructional facilitators on his campus:

My instructional facilitator goes on and runs that for me and we analyze it together. I haven’t gotten on the computer myself as much as they have, and my teachers do that as well. I also have two assessments facilitators in my building that are classroom teachers but also run those assessments for us.

Another principal discussed the excitement of having instructional facilitators and tutors on campus. She said, “Well, we have added instructional facilitators and tutors to our teaching ranks. It’s been really exciting.” One principal stated,

This year that instructional facilitator has been so important, because she does keep that consistency, help those teachers who went back and thought they knew what we wanted. She sits down with them in their planning and sits down with them and looks at scores on a pretty regular basis with them.”

Another principal reported about instructional facilitators,

Well, there are teachers that aren’t that comfortable with it. Getting my teachers where they’re comfortable enough that they’re going to use it. Thanks goodness I have my Instructional facilitators and assessment facilitators that help do that and sit down with my teachers to help analyze that. So I don’t like that part of it. I like the reports that come out of it.

Principals also reported about professional development opportunities for teachers.

Do they feel they have the right professional development? You know, I would say my teachers feel pretty good about the professional development. We had a conversation the other day, “What is the need?” I ask them that at the end of every year.

Another explained, “We try to provide opportunities for people to learn how to differentiate instruction. So everybody gets a chance to be successful in class.” Another principal discussed teacher apprehension, “I think the hardest part for me is helping them not feel so overwhelmed about everything. I think that is hard. If they bum out, the kids feel that. That is really difficult.” Another stated that teachers were afraid of data.

Some principals expressed concerns over teacher data use as well as data in general. Principals' views of data were clarified as they discussed their teacher viewpoints.

There are some real deterrents to having data. And that is that you can data analyze everything and some things shouldn't be analyzed. You need to be really thoughtful about the time it takes and the effort it takes. So it's worth thinking about.

Another principal also reported that data are disparate. One principal focus group member stated, "I don't know that teachers necessarily understand when they see where kids are falling on that NWEA plot, I don't know that they necessarily understand what that really means . . . in the big scheme of things." Another principal asserted that he has some teachers that do not analyze the data because they do not like what the results will be. Another principal noted the development teachers need:

The other thing I think we need training on, I recently just asked about in our principals' meeting, kindergarten through 6th grade continuum, teachers don't really know . . . they know they affect kids scores on our scores for our district and state testing, they send out the grades and they are feeling like, 'how can we tie together?' I would like to see more work in that somehow, that we can tie it together.

The distrust of data manifested as internal supports were investigated from the principals' point of view. Concerns about data in the schoolhouse were also mentioned.

I don't know that we always see a clear picture. And data to me is as good as the day of the child, so . . . that's not always accurate and that's why I do feel, that you have to do those teacher observations, you have to have many different forms of data.

A principal stated that it still comes down to the teacher in the classroom. This principal asserted that teachers are able to tell what the student needs, and their professional judgment has much more to do with the students than their scores. Another

principal cited “concerns with data, data, data.” Another said that she was not sure that the perfect world would only be about the data, because the data do not reveal the true essence of the child.

Campus data supports reported by district personnel. Almost all central office staff reported instructional facilitators as a support on the campuses.

Those instructional facilitators work to support the School Improvement Plans. They also work to support the district improvement goals . . . and we’ve aligned a job description and we’ve created what we call an innovation configuration map which helps them determine their current practice and where research-based best practice with what they would be doing if they want to make the biggest difference in student achievement.

While central office staff reported an instructional facilitator job description, the facilitators expressed being overwhelmed by the multiple expectations set forth. An instructional facilitator explained,

“We have a job description that’s I don’t know how many pages. I don’t know how many pages it is, but it’s . . . I guess I would actually like to know what our job really is. Nobody’s really defined that so. How we can make it better, I don’t know.”

Another stated, “Every school has a different need. What they’re doing for [instructional facilitators] . . . we’re all a little bit different I think.” Another instructional facilitator discussed that the district was not clear about the role:

The focus has not always been clear what our mission is not just in the building, but when it came about last year that the funding . . . within a month it was funding, turn around, hire. And the thing was left up to be defined. I know my principal, and I have had this conversation about what the expectation from the district is for teachers and the coach. It’s every teacher expected to use data to drive what you work with the coach on. We’ve had those conversations, and there’s been no direction, necessarily.

District Data Supports Available for Teachers

The district data supports for teachers were reported by three categories of respondents: (a) teachers, (b) principals, and (c) district personnel. All respondents referred to supports that existed for teachers. Teachers reported more on the campus supports and structures that existed in each building unlike their principal and district counterparts. Themes of structures, specific district personnel, and professional development were reported. Themes regarding lack of support, inconsistency, and lack of alignment were also discussed.

District data supports for teachers reported by teachers. Teachers have opinions about the district data supports they receive. Some teachers mentioned specific district personnel by name with regard to supporting them with data use. One teacher who serves as an instructional facilitator stated,

I know that when a teacher needs something, if I as the instructional facilitator cannot provide it, I can call someone at the district level and get it. I mean . . . right now I am working on some other things as far as district level counselors and again I can call up there.

Teachers reported on data supports they received as well as those they would like to receive. The district supports they described included specific district personnel, structures in place, and opportunities to look at data.

A few teachers complimented the staff at the testing office as being supportive. One said that if invited, testing office staff would come to the campus or print the report needed. Another discussed a person at the district who ran a requested report on math data. The teacher added that she would like to see the same report for reading and

writing. The testing office—or the “people on the hill”—provide supports and data service readily when asked by teachers for assistance.

Our district has taken that approach to a lot of collaboration, which I think is a great idea. I think it’s important to hear everybody’s voice and to make them all feel included and to get all ideas on the table. At the end of the day, you need a leader to say, “Ok, this is what we’ve decided, and this is where we’re going and this is how we’re going to get.”

Another teacher reported that they were getting more and more training. The assessment office came in this year and showed them how to access NWEA and understand reports, as well as how it could help them. The district also provided training for several teachers who in turn came back and shared the information with school faculty.

Teachers also reported the district providing support for teacher data use through the structure they have in place for monthly professional development activities. During these district days, the district provided student activities and the principal paid for substitutes for the participating teachers. While students engaged in educational activities, the teachers participated in professional development during the school day. Many teachers reported these days to be beneficial with regard to studying their student data. They also remarked that it is important to have relevant, timely data on the professional development days.

Teachers stated that the district gave teachers the opportunities to look at data, though the school was responsible for implementation as well as the extent of utilization. “The district expects schools to use data to make decisions and to set goals.” If development was there, the opportunity to use data was there. Data use occurred at

different campuses based on a numbers of support factors. A teacher reflected on district supports:

If your building has a need, the support is there. Building staff has to make it happen, and you will have the support from the superintendent. He won't do it for you, he will support you. You have to prioritize needs as a campus.

Some teachers reported negative experiences with regard to district supports for their data use. They discussed no general supports and a lack of district data. Structure, consistency, and lack of alignment were also themes heard expressed by some teachers.

Teachers discussed no general district supports and a lack of district data due to the varying school programs and initiatives:

We're pretty much on our own but I know in the Special Education Department our special education leaders, I guess, will call a meeting a semester where we're supposed to go over and they'll go over how to interpret the data to a certain extent.

Frustration in the teacher responses was evident and varied from person to person. A teacher stated, "Not all schools are on same page." Another teacher reported needing district support with the data terms: "I am not a statistician and sometimes I need things more in layman's terms rather than in statistical terms."

Structure in the system is not clear, as individual teachers call district personnel when they need assistance on their campuses. Regarding district clarity, a teacher stated, "I think the district vision at the moment would be to use data to make decisions, but how we all go about it and how much and how often isn't clear."

A teacher also reported that consistency would be important to have across the district with regard to the supports the district is providing for teachers.

It would be nice for it to be coming from at least the district level so that teachers and the district are all looking at the data and the information in the same way and give some guidelines that are across the district, which would be really helpful, because we have a lot of transient.

Another teacher stated regarding inconsistency, “There is no district data. There can’t be. No one’s teaching the same programs.” Another teacher confirmed, “One student can leave this building and go to another building and that consistency is null and void.”

The lack of alignment was another concern among teachers. One teacher discussed that the district should continue to work on aligning assessments to state standards. He knew they were looking at alignment and believed they should continue to do so. A teacher stated that there was not a district curriculum. Similarly, a teacher reported the varied math programs throughout the district and the frustration with the alignment. Another teacher responded that a district curriculum would help the teachers be on the same page.

Consistency was a common theme as teachers hashed out who supported them and how data were utilized and supported. Within consistency, lack of focus was reported as well. A lack of focus was reported by a teacher regarding district officials. “I think there is a clear expectation for what we want students to be able to know and do; I’m not sure in our district there is a clear understanding of how we get students there.”

District data supports for teachers reported by principals. Several principals reported that the district office staff want to help and try to do so. Principals wanted

more supports for their schools and continually remarked on the amount of hard work in which everyone was engaged.

I think that anything we need the district tries to provide for us and the state as well. Right now in our district we have some great people working in the assessment office and they try hard. I mean, they work at it.

Much of the district support came in the area of professional development.

Several principals remarked on the professional development days and the support the district gives them to work with their teachers. They commented on the support in this manner, but not in the support of the content they were to offer the teachers during these professional development days. “Actually what our district has . . . We’ll use FRED [district professional development] days for half-day meetings. And we also pull our data and we’ll look at it.”

Some principals reported that the district got the data to the schools at varying degrees of time. They organized it and delivered it to schools. They often discussed with principals how to introduce or how to present data to the staff. Another principal discussed that some schools used data better than others. Many remarked on the varying comfort level with the data; some schools were better than others. Other areas of support were mentioned less commonly.

One principal expressed a the lack of district support, “So the district basically, pretty much bowed out of the professional development as the schools started doing their own thing, so to speak.” Other principals asked specifically for more training and would like the district staff to explain how to get from the data to changing instruction in schools. Several reported specific needs in the areas of writing, reading, or math.

A principal reported a lack of district vision for data use:

The principals are not sure what the vision is. We're not even . . . I don't think there is communication from the school board level on down to the schools, even. . . . I think we are still in a situation where we haven't accepted the data use. We try to say that we're data driven. . . . We make decisions based on data, but we really don't. Plus I think because we are a district of choice, so often our choice is based on programs. So often times we define ourselves by our programs and ignore the data that tells us information about our programs and children's success ribbon.

A lack of alignment was discussed by some principals. One said that she really did not know what the state wanted and was not clear about the district, either. Another principal stated that her teachers needed training on the K–6 continuum and specific assistance on what the expectations were. Another principal similarly asked the district to communicate to K–2 teachers their impact and correlation to Grades 3–6. This principal wanted guidance and more information about students earlier than the third-grade PAWS state test. She also suggested an alignment between the PAWS and professional development for teachers and principals.

Too much data and more simplified data themes resonated among some of the principals. The district supports for each campus were those that principals discussed most, as they are the providers of the data for the campuses.

I would add that AYP [Adequate Yearly Progress] keeps coming up over and over, and it's a driving force, obviously nationwide. At the same time, those growth assessments that the district started doing before NCLB even came around, they're a driving force, too. They do give us good information on individual students. And then the school improvement process, that's been a good deal too. It's made us focus on our weak areas and acknowledge our strong areas and give us direction on bringing in remediation for those weak areas. So the data is good stuff. There's just too much. The campus level needs data in more simplified terms. There is too much data and don't know enough about what it means.

Inconsistent structures were reported by some principals as they reflected on the external supports the districts offered. Several different people in the district offices ran reports when asked by campuses. A principal noted,

You know, this last year district personnel ran a report for us on our growth on our math and different ways, we looked at it different ways and I really like that. I would like to see him to do that for us in reading and writing as well. I'd like to get that report on a consistent yearly basis.

Issues between departments also existed within these inconsistent structures. People were not able to access the data because someone else was the “keeper of the keys.” This prevented them from getting their work done.

District data supports for teachers reported by district personnel. District office personnel reported a desire to support teachers on the campuses. For instance, one respondent looked at student assessment patterns by district and schools. Another reported on the various systems provided to teachers to access student history reports. The system was described as cumbersome and a struggle to use. The district personnel discussed providing school improvement reports to the teachers as well as placing them on a CD so that school personnel could look them up. Another member of the district office said that he tried to make data available to teachers, but the data had not been user friendly enough.

District personnel reported the Body of Evidence System as a support provided by the district office. The Body of Evidence System measured student achievement over time. There were opportunities for students to show their achievement in nine competency areas. This system was based on the state law that students need to show

proficiency on nine different standards. Central office staff discussed it as providing the achievement data on state assessment and using that as an accountability structure for graduation. Some district office personnel referred to this system and viewed it as a source of support for the campuses.

District personnel referred to the School Administration Student Information System (SASI), the information system used in the district. They used SASI to track student behavior in order to study trends as well as to see which students would benefit from early intervention programs. They also utilized SASI data to show the need for more counselors at the elementary level. They tracked the playground behavior of third, fourth, and fifth graders in 23 elementary schools and noted more acts of aggression with students this age. As a result, they implemented anger-management classes, impulse-control classes, goal-setting and decision-making training, bully intervention programs, and a school-wide behavior-enhancement program. At the secondary level, they used SASI to track violence, alcohol, and substance abuse.

District personnel reported that the Assessment and Research team was trying to foster a culture of data use across the district. They wanted to create a culture of actionable information, where assessment results are not viewed as negative. There was a noted previous conception in the district that data were slanted for various purposes. People still were feeling that old culture in the district when data were discussed. Another person commented, “It doesn’t matter what the data is, it matters that the data looks good when you put it out there.”

Curriculum was mentioned by several district personnel as they discussed their support for campuses, as they were in the process of creating “guaranteed and viable curriculum.” Another person remarked that no district-wide curriculum was in place. The district had an informal curriculum, but not an officially written one. Teachers were “independent contractors” and did what they wanted. Another person commented, “It’s not necessary [to have a district curriculum] because of the ‘schools of choice’ model, it is about autonomy.” Another person remarked that the district is average, there is a reluctance to embrace state assessment, and there is lack of good curriculum.

District personnel also reported on the support they have given to the campuses in the form of the interest-based agreement process. This process involved all stakeholders and developed a consensus on issues that arose in schools and established an action plan. Schools were to utilize this process as they worked through various issues on their campuses. They discussed that the relationships built during this process enhance trust and problem solving. An evident consensus was the need to improve the interest-based agreement process plan.

Quantitative Data

Table 1 presents the 278 teacher responses to the individual survey questions on the Use and Perceptions of Educational Data Survey. Table 1 shows the mean, a 95% confidence level, and standard deviations for seven following individual questions asked of teachers.

Individual items on the Use and Perceptions of Educational Data Survey were set on a 4-point Likert scale with response categories appropriate to the nature of the

question (e.g., *strongly disagree*, *somewhat disagree*, *somewhat agree*, *strongly agree*).

This particular section of the survey had been reported previously by Wayman et al.

(2007).

Table 1

Teacher Responses to Use and Perceptions of Educational Data Survey Items Related to Research Question 1

Survey item	Mean	95% confidence interval		SD	SE
		Lower bound	Upper bound		
1. I am adequately prepared to use data.	2.50	2.40	2.60	0.86	0.52
2. I am adequately supported in the effective use of data.	2.54	2.45	2.64	0.80	0.48
3. I am given time to use data effectively.	1.95	1.85	2.05	0.82	0.05
4. My district provides useful professional development opportunities to help me learn more about how to use data.	2.29	2.19	2.39	0.85	0.05
5. There is someone I can go to who can answer my questions about using data.	2.80	2.70	2.90	0.87	0.05
6. I collaborate frequently with other educators about data and how it relates to the learning needs of students.	3.16	3.06	3.27	0.87	0.05
7. I would like to collaborate more with other educators about the use of student data	3.17	3.07	3.26	0.79	0.05

Note. Means on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

Table 1 reflects individual responses to individual survey items related to teacher supports. The question items mentioned above had means that ranged from 1.9–3.17. The lowest mean ($M = 1.9$) corresponded to teachers somewhat disagreeing about being given time to use data effectively. Thus, not only do teachers want more time, but

they want it for collaboration, as Item 7 reported. A mean of 3.16 was reported, as teachers informed that on average they moderately collaborate about data. So while they moderately collaborate about the data, they still need more time to do so. The mean for wanting to collaborate more is 3.16 as well. Teachers conveyed that they not only collaborate, but also would like to do it more often. While the teachers somewhat agreed regarding collaborating and wanting to collaborate in Items 6 and 7, they disagreed about being given time to use data effectively. Thus, while teachers reported collaboration, they reported being given time to do so.

Much of the quantitative data supported the qualitative data findings, specifically those supports related to time. Themes of collaboration, lack of time, and need for professional development were reported by teachers in the interview and focus groups when discussing campus data supports. Regarding district supports, teachers reported similar themes of wanting more professional development and lack of support for data use.

Research Question 2: Leadership Supports for Teacher Data Use

Qualitative Data

Leadership supports for teacher data use were categorized into two areas: campus leadership and district leadership. Campus leadership referred to the supports provided by principals for teacher data use. Both teachers and principals reported on campus leadership supports for teacher data use. District leadership referred to those district leaders not on the campus who provided support for the teachers. Teachers,

principals, and district personnel reported on district leadership supports for teacher data use. Within these two areas of leadership, several themes of support emerged.

Campus Leadership Supports for Teacher Data Use

Teachers and principals reported on the leadership at the campus level. Similar themes and patterns emerged. Themes discussed included professional development, collaboration, structures for data meetings, and providing data for teachers. Others cited instances of lack of support.

Campus leadership supports reported by teachers. Principals planned and engaged with the staff in professional development and collaborative efforts in order to support data use in schools. Almost all teachers reported that their building faculty meets about data. Some reported it more regularly, whether during data-specific meeting or staff meetings. Another teacher noted that they had a staff meeting every Thursday for the purpose of data-driven discussion. Another teacher reported on looking at data in different ways, depending on the meeting. For example, teachers would look at data student to student, grade to grade, or even between two grades. A teacher was thrilled about having a specific day once a month that was a professional development day for teachers. These days were focused on science and social studies learning for students on that campus.

Another teacher remarked that the teachers were learning the difference between planning and collaboration. Another teacher said, “The principal helps us with the data, and our reading coach helps with the reading data.” One teacher stated that the principal “has the expectation that we will use the data that we are getting, [along with]

our School Improvement Plan. We will use data to make better decisions.” Another teacher discussed a culture in which they always are receiving their student in a report. “As the matter of fact, at almost every meeting there is something else they have printed out they feel we should know.”

Teachers in general looked to their campus leaders to assist them with their data. Some described leaders as well versed in data and others reported principals who struggled. Either way, there was a common theme of working hard on data. A teacher described her principal, “He is a real instrument in kind of leading us down that path.” Another teacher described the state of campus leadership with regard to supporting teacher data use. She too recognized that more learning is needed to become proficient at using data in schools.

The good things are, our principals are really seriously good people and they’re trying to do the best they can do for the school with having their hands tied a lot or not having a lot of leeway one way or the other. And so I think meeting with the faculty and trying to explain the test results and how to read the test results and what you do with the data is almost a new thing for them also. They’re giving us what they are capable of giving us, what they learn they are passing to us and that is a really good thing. I think the bad thing is, everybody is in the learning stage.

Teachers also reported that principals created committees for supporting data use in schools. Principals also set an expectation for using data in their schools. A teacher stated, “We have staff meetings every Thursday for data-driven discussion.” While all the principals operated on varying levels of knowledge with regard to data use, the teacher perception was that some principals encouraged data use on their campuses. Teachers reported serving on various committees, such as how to grade

students. Other teachers were sent by their principal to investigate professional learning communities and were expected to share what they learned with the campus to implement such communities. Another group visited Cherry Creek, Colorado, and learned about showing work and how to use document boards and anchor charts.

Teachers also reported about a lack of leadership from principals regarding faculty data use. One teacher stated, “Well, he pays close attention to it certainly and stokes the rivalry between us and the cross-town high school, the other big campus. And beyond that, I couldn’t tell you.” Another teacher stated that her principal provides the data in a bound report.

Teachers also reported the principals provide supports for teachers by funding outside consultants. These outside consultants worked with teachers on the campuses with student data. A teacher stated, “We have hired a lady that comes in for staff development and she gets together with grade level teachers and they look at the data specifically and personally and then talk about their plan and adjustment.” Another teacher discussed a consultant being used in their building: “A math consultant is hired to review math scores. She plans staff development to review data and works with teachers to make plan and adjust accordingly.”

Campus leadership supports reported by principals. Campus principals reported regularly scheduled meetings about data, structures for studying data, and professional development opportunities regarding data. They also discussed having expectations, being providers, and paying for outside consultants. Principals reflected on the process

of looking at data and the difficulty in supporting teachers with understanding the data.

Principals reported in general about weekly and monthly meetings to look at data:

They are hard conversations. You know I actually do more talking about what the data is talking about now and I think I am in a new territory on it. How do you have those conversations, because people will invariably say, “Well, it was a bad day for Jane or Jill and they didn’t test very well.” And I know that can happen. I totally agree with that.

Another said,

As a part of that process we do talk about data and introduce data, and we talk about how we use data. And that is in a large-group, formal setting we do that. Our instructional facilitators also will meet with small groups, with core teams, and do kind of the same sort of processing but in more detail and look at data that way.

Another principal explained, “At the beginning of the year we’ll show end-of-year results. We’ll sit down and we’ll start with each class list of incoming students and look and see where they are at this point in time.” Finally, another reported,

We have data meetings regularly. After each of our DIBELS [Dynamic Indicators of Early Literacy Skills] benchmarking, we have a scheduled data meeting where we view our lexile scores on the DIBELS and we also review our growth assessment or our DIBELS, whichever happens to be coming at that point in time.

Principals also reported different types of meetings. Some discussed meeting about data three times a year. A principal elaborated,

We have meetings and we actually get our stuff out. We get our sheets out with the schools, and we actually sit down and look at them. We meet three times a year, especially to look at the data we collect on kids and try to decide what interventions we should do with them.

A principal stated, “We have collaborative meetings every week with every grade level.” Another principal talked about having focus meetings during the teacher

conference periods: “We have focus meetings all day. When we go grade level to grade level and we review student progress.”

Principals also discussed the structures for collaboration they implement on their campuses. However, many of the principals described loose or vague structures for collaboration. For example, a principal discussed how the teachers collaborated. The collaboration on this campus occurred due to a loose structure the leader put in place. “You know, they work together. They work so closely together. They have planning time together.” Another principal mentioned a specific structure on his campus in which he has also arranged the teacher schedules so that grade levels can meet daily. He also stated, “They have collaboration time during all their special times.” The principal created the structure for the data use on the campus.

Professional development was also a topic of conversation for principals. “I think staff development has become a huge part of it. We’ve worked really hard to get smarter. And people are very motivated, very energized.” Others discussed studying the proficiency data on the PAWS with their teachers during professional development. Another principal reported spending time with teachers to chart student data. A principal met three times a year to look at the data to determine any interventions. She also stated that teachers have enrichment half-days and staff days that were sometimes used to assess data.

Some principals reported that they set expectations for data use. One specifically described an expectation that teachers should know their data as well as discuss student progress. They discussed student scores according to moderate or low

growth. Data were also used to back up discussions on this campus and to isolate trends with teachers as a result of several years' worth of data. Within these expectations, principals also discussed goal setting with teachers. End-of-year results were shared with teachers in order to develop future goals.

Some principals compiled and provided data for the teachers. "When these scores come out, I literally make a copy of every grade level's scores in a packet, and it goes out to all the teachers."

Some felt comfortable with data use. A principal remarked that she felt good about reading data as well as manipulating data for spreadsheet evaluations. Another also remarked about being comfortable with data use and guiding the teachers. Others were working on learning more so they could provide more direction for their campuses. One principal discussed needing more training on the K–6 continuum.

When asked about how often they use data on their campus, a principal responded, "All the time. It drives everything we do here. We analyze our data, we do our assessments; we spend unbelievable amounts of time in going over that data."

Principals also reported an appreciation of the information the data gave them.

It helps me do my job by giving me the information I need to direct the school programs. And direct, I don't mean I decide what they do. To help the staff to identify the weak areas, and we get programs that are shown to improve and help them in place.

Whereas some of the principals were advanced in their understanding and use of data, many more were not. Data use varied from campus to campus, as well as by type of

school. Elementary principals were far more likely to have a plan for data use than their middle and high school counterparts.

A principal asserted that they would be going to a new level on the campus and engaging the work of a consultant.

But it's been really introductory on what is the data beginning to tell us where our strengths are, where are weaknesses are, to validate the School Improvement Plan as well as how we are going to execute those assessments in the building. Next year we'll go to a different level where we've hired a consultant to begin working on unpacking the standards.

District Leadership Supports for Teacher Data Use

Teachers, principals, and district personnel reported on the leadership at the district level. Similar themes and patterns emerged. Themes discussed included positive interactions with specific district people, frustration, and inconsistency.

District leadership supports for teacher data use reported by teachers. Teachers discussed a variety of frustrations and inconsistency with the district leadership in supporting teachers in data use. Teachers described more campus leadership supports than district leadership supports.

Teachers reported frustration with directives from the district level concerning professional development. They also stated a frustration in efforts to follow the school's vision, which does not necessarily coincide with that of the district. They were getting a message from the district about what was expected from the campuses without any alignment between the two entities. There was also a concern that there were no true district data. Another teacher noted, "With the district being schools of choice, there is no consistency with kids coming and going from the campuses." Another teacher was

frustrated that, regardless of various situations, all elementary schools are compared and graded against each other. One teacher hoped that district leadership listened to what was being said in these interviews.

Continuing with the lack of consistency, a teacher stated, “The district is famous for incorporating something for a year and then dropping it. They don’t listen.” When stating “district,” they are referring to those in leadership roles. A teacher asserted that teachers were trained as professionals and felt as though the district did not have confidence in their ability to assess students. Further, they felt that the district did not value teachers’ professional judgment.

District leadership supports for teacher data use reported by principals.

Principals were more positive about the district leadership and its support for teacher data use. Many principals described the leadership supports they receive from the district as they lead their teachers in data use.

I have asked the assessment director to come at the beginning of the every year and go back over the scores with us, just give us some feedback on about what progress it looks like we’re making and how we’re moving along with that.

Another principal reported, “They [district staff] provide a lot of data for us. They organize it and they get it out to us. They do some introductions for, ‘Here’s how you could present it to your staff.’” Again, this principal discussed a varying level of comfort among campus leaders with regard to supporting their teachers in data use.

A few principals discussed how district leadership is trying to support teacher data use in schools. “The district is trying hard to align their professional development to what is going to most affect those PAWS tests.” Another principal concurred,

I think they're really trying. I think they're also learning and I really do think they're trying. They're good about sending teachers to workshops, to conferences, to wherever they feel they need to go to gain the knowledge to work with the data and interpret the data. Our district is great about doing that.

District leadership supports for teacher data use reported by district personnel.

District personnel reported frustration with regard to leadership supports for teacher data use. They reported that teachers were asking questions; although the district might have the data to answer the questions, resources were needed to create the reports and answers to these data questions. In some instances they were referring to the computer and the reports teachers needed. One person stated that they needed to bolster those resources so the answers are a stroke away, making it easier to provide that leadership support.

With regard to supporting teachers through their leadership, a district official stated, "Schools pretty much want it. They might ask me for a student profile on one of their children or something, but no, mostly it just stays in this office and out to our assessment group, facilitators, and principals." Another person commented that he wanted to continue to use data and get better, not depend on the teacher as the sage expert.

Negative feelings existed about data as well. District personnel reported that people did not talk about data. Another person explained that usually she went to the office that housed the particular data and begged for the data. The same person said that it is harder for many people in their district to change as they are in their 40s–60s. This age variety is a leadership issue that requires district leaders to realize the age

difference in the district. They, in turn, have the duty to address and provide supports for these teachers.

Quantitative Data

Table 2 presents the teacher responses to the individual survey questions on the Use and Perceptions of Educational Data Survey. Individual items on the Use and Perceptions of Educational Data Survey were set on a 4-point Likert scale with response categories appropriate to the nature of the question (e.g., *strongly disagree*, *somewhat disagree*, *somewhat agree*, *strongly agree*). The responses are from 278 teachers. Table 2 shows the mean, a 95% confidence level, and standard deviations for two questions asked of teachers: (a) There are clear goals and structures for teaching and learning in my district, and (b) there is a clear vision for the use of data to inform education in my district.

Table 2 reflects individual responses to these individual survey items related to district goals, structures, and vision. The items had means of 2.68 and 2.43. Question 1, regarding clear goals and structures for teaching and learning, averaged between somewhat disagree and slightly closer to somewhat agree. Question 2, regarding a clear vision for the use of data to inform education in the district, averaged between somewhat agree and disagree.

The qualitative data collection mirrored the quantitative findings. Themes in the quantitative data that aligned with the survey included frustration and inconsistency with the district leadership support of teacher data use. Teachers reported frustration with the district vision and campus vision not being aligned.

Table 2

Teacher Responses to Use and Perceptions of Educational Data Survey Items Related to Research Question 2

Survey item	Mean	95% confidence interval		SD	SE
		Lower bound	Upper bound		
1. There are clear goals and structures for teaching and learning in my district.	2.69	2.59	2.79	0.86	0.05
2. There is a clear vision for the use of data to inform education in my district.	2.44	2.33	2.54	0.85	0.05

Note. Means on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

The School Culture Quality Survey items were set on a 5-point Likert scale with response categories of *never*, *rarely*, *sometimes*, *often*, and *always*. This section of the survey instrument has been documented as reliable and valid in a variety of school district settings (Borman & Associates, 2005). The School Culture Quality Survey included the following two individual questions: (a) Administrators at my school do all they can do to facilitate the work of the faculty and staff, and (b) at my school administrators and teachers work together to develop goals and values that guide us. Teachers reported a mean of 3.6 with regard to Item 1. They reported that administrators in their schools ranged from sometimes to often doing all they could do to facilitate the work. Teachers also reported a mean of 3.57 on Item 2.

The School Culture Quality Survey individual items answered questions about the will of the administrator to engage in the work as well as support the teachers in the work. These two survey items are relevant because they describe the culture of data use in a succinct manner. In the qualitative data, teachers never reported that their

principals were doing all they could to facilitate data use, whereas on this survey they demonstrated that occurred from often to sometimes. The same can be said about Item 2, concerning working together to develop goals and values to guide the campus. Teachers described campus leadership supports but few instances of developing goals and values that guide the school within that structure. The School Culture Quality Survey provided another lens by which to view campus leadership.

Table 3

Teacher Responses to School Culture Quality Survey Items Related to Research Question 2

Survey item	Mean	95% confidence interval		SD	SE
		Lower bound	Upper bound		
1. Administrators at my school do all they can do to facilitate the work of the faculty and staff.	3.67	3.54	3.81	1.15	0.07
2. At my school, administrators and teachers work together to develop goals and values that guide us.	3.57	3.45	3.70	1.06	0.06

Note. Means on a scale from 1 (*never*) to 5 (*always*).

Research Question 3: Technology Supports for Teacher Data Use

Qualitative Data

Technology supports and lack of supports influence teacher data use in schools. The technology systems in this district were not integrated. This research question was answered by teachers, principals, and district personnel, who reported on how

technology supports teacher data use. They also discussed the barriers that existed in the school district as well as the issues with which they needed assistance.

Technology Supports for Teacher Data Use Reported by Teachers

Teachers reported several supports that were currently in place as well as the barriers they experienced in their use of technology. Teachers discussed supporting each other in use of technology. Teachers also wanted better and more timely access to data. They expressed a need for technology professional development to understand the reports and data more effectively. There was also a distrust of the data. Due to the fact that several systems were in use, it was important to the teachers to have a system that maintained all the data.

Teachers reported supporting each other in their use of technology. For example, teacher leaders who had titles such as reading specialist, technology coordinator, or instructional facilitator often were those other teachers sought out to help. Sometimes these were people who understood technology and were able to explain to peers; other times they were teachers without titles who had figured out technology as best as they could.

A teacher remarked, “Our instructional facilitator in technology has done all the work in getting my paperwork to me.” Another teacher described the technology coordinator: “She finds software and then she also is a great source to the other teachers as to if they come to her with a child that has a specific problem. She knows so much about software.” These teachers often were the providers of the technology and

supported the teachers through reports. For example, one teacher stated, “Actually, the reading specialist has all that information on a computer.”

Teachers expressed a need for better access to data as well as timely access to the student assessment data.

I think the data we get now is better. It would be nice to have it in a timely manner. And like the writing portion [of the PAWS], we didn't get it back, so we didn't know where we need to work on those weaknesses.

Another teacher referred to the need to have the state PAWS results in a timely manner:

I know that, for instance, in my classroom I took my students' results from last year when they were seventh graders and started the year by plotting their results on PAWS so that I could use that to help inform what I wanted to focus on in my class, what skills or what standards I really needed to put an investment into. As long as those results can be, as long as we can receive those quickly and as long as we can trust the results, there's a lot of potential for that. We're not there yet, but I think we're moving in that direction.

Another teacher discussed they did not receive the PAWS data until the very last minute. One teacher commented that with portions of the PAWS online, the state should be able to support teachers and get the results back in a reasonable amount of time.

Teachers discussed a need for more technology professional development to understand the reports and data more effectively. They discussed needing help with viewing and understanding data. One teacher stated that more development for department chairs related to the plan for data use and technology would be useful for teachers as well as for school improvement chairs. A teacher commented, “The biggest step so far is trying to understand data and relay that.”

Several teachers discussed maintaining both computer and paper records. They distrusted technology. They were not sure that the technology was a secure place for their information, so they preferred to have a paper copy as well. This referred to everything from grades on the computer to student test data. A teacher kept a complete paper list of the student data: “You can access the computer, but it makes it so you can only access 10 kids at once, so I think that is why they have that booklet and everyone has one in the classroom.” Another teacher discussed the same need to keep a paper copy of her grades as well a need for more training:

I have never been used to putting my grades on the computer like that and so I am not very good yet at training myself to go in every time I do an assessment. I know I am behind all the time because I am just not used to doing it. I have all mine still recorded on my little paper. You have to, just in case. I know just in case, but there are people that the first thing they do. And they are being forced in some way to think about having to back up, and I don't, and I think that's just a training we have to do. It's gotten better. I didn't have any troubles practically the whole year.

A continued distrust of data related to technology was seen in other comments, such as the teacher who thought they should not compare students to each other. She wanted to celebrate the success of individual students. Several teachers questioned the reliability of the PAWS and the NWEA Growth Assessment, especially when they were administered on the computer. A teacher was convinced along with her peers that students accidentally press “Enter” on the keyboard and miss questions they should not on this computerized assessment. They asserted that the test was not an accurate reflection of the student knowledge because students could not go back to a question if they changed their minds.

Within this consistent distrust of data by teachers, no one addressed not meeting Adequate Yearly Progress. Also, there was distrust with the reading assessment that a teacher administered. She stated that the assessment she did at the beginning of year showed a reading level. She then stated that a week later it was not the right reading level. She believed that the assessments did not measure accurately.

Important to the teachers was a need for a system that maintains all the data. One teacher discussed the numerous passwords that teachers have to remember.

Right now we get online to get a substitute teacher; we have a different password for that. For PAWS, we each have a really weird password that has nothing to do with anything so you couldn't really memorize it. You have it sitting in front of you. Everything has a different weird password.

Some teachers remarked about not wanting more data but perhaps better data that were more accessible in one system. A group of teachers discussed how they have data accessible in their classrooms and the frustration with the accessibility. "You can access the computer, but it makes it so you can only access 10 kids at once, so I think that is why they have the booklet and everyone has one in the classroom." Another teacher discussed only being able to see one student on the computer at a time. "One at a time, which is a downfall. Which meant that I had to call up my students one at a time. But that's still reasonable, because I want their scores."

A teacher said, "I can't imagine having more! I would like a page online on each student that includes how they did on each assessment. This one page would contain all of the student's testing information." Some teachers wanted one system that maintains all data information. Teachers discussed being a part of developing the

system so they could contribute buy-in and commitment. One reiterated, “We are good at looking at data with regard to how we need to help students.” They know what they want and they expressed a genuine need to be a part of the process.

Some teachers reported being able to look up student scores on the computer but complained about it being time consuming and about only being able to view a few students at a time. Another teacher had no issues locating her students’ Scholastic Reading Inventory scores on the computer and stated that she looked them up frequently. Another teacher reported that the computer system was slow. One teacher discussed the amount of time to print the report: “To get their scores printed, for their test scores and all that, it was a few minutes per kid just to get their score up and then you had to print it. So, it took a really long time.”

Technology Supports for Teacher Data Use Reported by Principals

Principals reported various supports for technology that influence teacher data use in schools. They discussed the district support for technology. They also addressed the new initiatives, such as instructional facilitators and tutors. Professional development for teachers was addressed. They also expressed a need for a computer system, so that teachers could quickly find their data on the computer.

Principals pointed to the technology supports received from the district for teachers.

This district provides and the state provides all the PAWS data so we don’t have to do much there. The in-house data we produce here. . . . We have a gal that runs our computer stuff for us and we have several people who are able to produce that quite easily. There is a district support person if we don’t know

how to run a query that we call on our district-wide system. They help us do that.

A principal also complimented the Assessment Office: “I have to give the district some credit, the assessment office if you ask . . . it’s never no.” Another principal commented that the district tried to provide for them and the state as well. “Right now in our district we have some great people working in the assessment office, and they try hard. I mean they work at it.”

Principals also addressed the new campus initiatives, such as instructional facilitators, and described them as a technology support. A principal said that the instructional facilitators are a support for the district and schools. A principal discussed the support of having two instructional facilitators on his campus who run the data on the computer for him and then they analyze it together. Another principal stated, “I also have two assessments facilitators in my building that are classroom teachers but also run those assessments for us.”

Professional development for teachers was also addressed. Principals commented that technology was creating a need for teachers to engage in related supportive professional development. “Technology is forcing us to look at how it is used and how teaching occurs in the classroom and to get away from teaching and focusing in student learning.” They also saw technology as a way in which to improve instruction in their schools. “Then our teachers are training to use different kinds of technology than they have in the past, so they will teach differently.”

A principal also expressed a need for district support for her teachers who taught English language learners.

Our challenge with that is being an ELL [English language learners] school and looking for our district support on how we can be adjusting strategies to hit those specific learners' needs. We are lacking the data to drive what needs to be differentiated.

Principals also discussed a need for an integrated computer system so that teachers could quickly find their data on the computer. One principal stated that she wished for a great program that would address student needs.

I am like everybody else, I wish there'd be a great, a great program that everybody, someone could say, ok here's a magic bullet, because we need it to make everybody achieve . . . to make everybody want to be a part of our school, to make it a great place for every kid. And nobody has that right now that I'm aware of, because I'd pay for it.

Another principal stated that the district is trying to get all the technology in one place.

I know one thing we're working on as a district is trying to get it all in one place. That doesn't incorporate some of building assessments that we need and we use, and more and more schools are using right now. . . . So, I don't know how they could build it to where we could get on one page, here's what we're seeing in the student body, and maybe for us, it would include DIBELS, the phonemic awareness survey, and PAWS depending on grade level.

Technology Supports for Teacher Data Use Reported by District Personnel

District personnel reported on technology supports for teachers. They expressed a desire to help those at the campus level. They also discussed a need for new equipment as well as one computer system for the data. One member of the district office discussed a personal mission to have requirements for teachers to have a certain level of proficiency with technology.

District personnel wanted to give assistance to teachers. They expressed a need to access the data in a timely manner as well as to have a system with different levels of access for the various positions in the district.

The frustration right now is individuals who are responsible for holding trainings or doing data or trying to make educational decisions based on data frustrate because they can't get easy access to it in a timely manner. Very frustrating . . . and so real. . . . I mean, my vision—and I don't have a clue on how it would work, OK—would be that everything's interfaced with everything and that individuals who work in this organization would have access to the level of information in which they are cleared for.

Some district personnel discussed a need for integrating district computer systems.

I think what we really need is all the systems interfacing with one another and that employees have different levels of access to that information to be able to pull the pieces they need and to be able to get it without having to have one person be the gatekeeper on it all.

Another person noted how nice it would be to have one system that would allow various systems to link together and exchange data. Another district official stated,

I think I would like our systems to work together. I would like increased education about data so that people understand it, so they know how to use it intentionally and that we continue to make more and more decisions based on data.

New equipment was also addressed as a need to support those at the campus level. "I feel like we need more current equipment in the libraries than what we have."

Another district official discussed having better access to the curriculum for teachers:

It would be nice if there were quicker and easier access to curriculum objectives, so that when we are doing reference hunting . . . for example, when I am doing reference hunting with the elementary library media personnel and I want to tie it to the third grade standards.

She described the current system as “more cumbersome.” Another district official stated that he would like to see the data become more integrated and access be given electronically to teachers. “If we could get all our databases to really communicate and stream data efficiently and we could get that reporting in the hands of the teachers, that would really allow us to be a data-driven district.”

District personnel felt as though they were on the right track in supporting teachers and campuses.

I think in the realm of technology, both the tech side and the learning side of technology, I think we’re out there. . . . We’re pushing the envelope in a lot of ways . . . that we’re totally successful with everything, no, but I think we are pushing it out there.

A member of the district personnel discussed her support of the teachers in the district. She builds the reports for teachers so that they can see who has tested.

A district official discussed that he thought that some schools were more willing to discuss data than others.

I think pockets are starting to use it more and more and becoming much more willing to engage in discussion based upon data. I think the idea that the tests must be wrong because it’s not telling me what I want to hear, I’m hearing less of that.

He continued, “I think that is a piece that is changing but we certainly have teachers who are not comfortable, they do not understand what it means.” Another member of the district office discussed the various abilities of teachers.

Our teachers, in terms of capacity to use technology, are all over the map. I mean, it’s a continuum. We have widely varied skilled, just basic skill levels with our staff. We have a bit of a dilemma on how to address that.

Another member of the district office was adamant that teachers be treated as professionals, meaning they needed to be expected to have set computer skills required for their position. “This is my personal soapbox, which I believe that a teacher, like any professional, should come to the job with a fundamental knowledge of technology.”

Another district official discussed not supporting the teachers and getting the data to them in a timely manner.

So I guess I can sum that up by saying—and again I am not in the classroom so it may be different—but from my position on the outside looking in, maybe in some sense is that we’re collecting the data, but we don’t seem to have a way to get it to the teachers technically. We give it to them on paper sometimes, but also there doesn’t seem to be a timely way to get it to them. And we don’t seem to have a system in place to help figure out how to use it.

Another district official discussed the strengths in technology supports.

The strengths are that we recognize the value of sharing it within the district. So that it’s not one person’s kingdom that nobody else can venture into. . . . The weakness is getting to it or getting people to get to it.

Finally, another district official discussed teachers and data.

So, when you train them to use that data they start developing a guilt complex and they have to do something with it. The ethically can’t ignore it. So, I think when we expose them to the truth, if you will, we need to be ready to help them do something about it. And that is just my opinion.

Quantitative Data

Table 4 presents teacher responses to individual survey questions on the Use and Perceptions of Educational Data Survey. The responses are from 278 teachers.

Table 4 shows the mean, a 95% confidence level, and standard deviations for survey items related to technology supports.

Table 4 reflects individual responses to these individual survey items related to technology, computer systems, and access. Question 1, regarding having proper technology to efficiently examine data, had a mean of 2.65, falling somewhat closer to somewhat agree than somewhat disagree. Question 2, regarding computer systems being user friendly, had a mean of 2.46, right between somewhat disagree and agree. Question 3 discussed computer systems providing access to lots of data; responses had a mean of 2.65, averaging closer to somewhat agree than somewhat disagree.

Table 4

Teacher Responses to Use and Perception of Education Survey Data Items Related to Research Question 3

Survey item	Mean	95% confidence interval		SD	SE
		Lower bound	Upper bound		
1. I have the proper technology to efficiently examine data.	2.65	2.54	2.76	0.94	0.06
2. The computer systems (for data use) in my district are user friendly.	2.46	2.36	2.57	0.92	0.06
3. The computer systems in my district provide me access to lots of data.	2.66	2.55	2.77	0.94	0.06

Note. Means on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*).

The qualitative data specified more of the frustrations encountered with teachers and the support of their data use. Whereas the quantitative data provided a mean response on the 4-point Likert scale, the qualitative data provided examples of teachers wanting better access to data as well timely access to the data. Teachers also reported a distrust of the data. Teachers expressed a need for a system that maintains all the data in their interviews and focus groups.

CHAPTER 5

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter summarizes results, discusses implications, and makes recommendations for future research. The present state of teacher data use affords an opportunity to do more than simply collect data, but also to utilize data to effect change in schools. The findings discussed in this chapter highlight the supports that exist for teacher data use in schools and the exigency of understanding how a systematic structure is necessary to perpetuate the learning that occurs in schools.

The case study findings analyzed and discussed in this chapter originate from NCSD research (Wayman et al., 2007). The aim of the present study was to determine what supports exist for teacher data use in schools. Multiple factors continue to influence teacher data use in schools (Armstrong & Anthes, 2001; Ingram et al., 2004; Lachat & Smith, 2005). Administrators are compelled to think about the changes that must be implemented in schools (McLaughlin & Talbert, 2006; Sunderman et al., 2006; Wayman et al., 2007) as well as how they can support teachers in the process. This change can manifest itself in the form of discussion and data-driven decision making (Earl & Katz, 2006; Wayman & Stringfield, 2006; Wellman & Lipton, 2004). Consequently, researchers have reported that teachers will use data if such data use is helpful to their craft (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006). Technology is an instrument for providing data to teachers and a

chief consideration when school districts are serious about implementing change (Wayman et al., 2004).

The study investigated the supports that exist for teacher data use in schools.

Three research questions were answered:

1. What general data supports exist for teacher data use in schools?
2. What leadership supports exist for teacher data use in schools?
3. What technology supports exist for teacher data use in schools?

The following section discusses the findings from this study in the context of each of the research questions. Discussing the results of these research questions and comparing the findings to the current research assist in generating implications about support for teacher data use.

Discussion of Findings

Research Question 1: General Data Supports

There are a variety of general supports for teacher data use (Boudett et al., 2008; Lachat & Smith, 2005; Love, 2000; Wayman et al., 2007; Wayman & Stringfield, 2006). In this study, general supports for teacher data use developed into campus supports and district supports. Much of the quantitative data supported the qualitative data findings, specifically those supports related to time. Sunderman et al. (2006) noted that time and allocation of time for collaboration should be foremost in the minds of school leaders. Themes of collaboration, time, professional development, and lack of supports permeated both campus and district supports.

Campus Supports

Forms of collaboration in NCSD included team meetings, focus meetings, and faculty meetings. The topic of data was discussed in faculty meeting and team meetings weekly or monthly. Many teachers described days set aside for collaboration. Lachat and Smith (2005) discussed empirical research that confirmed this practice of collaboration with regard to data use as a potent strategy for building skills and focusing on student learning.

Essential to data use is teacher time for planning and collaboration (Chen et al., 2005; Lachat & Smith, 2005; Steele & Boudett, 2008; Wayman et al., 2006). Time was noted by teachers as a resource of which they needed more, although there were differing levels of commitment depending on the school. Lack of time is consistently cited as a barrier to teacher data use in schools (Ingram et al., 2004; Lachat & Smith, 2005; Marsh et al., 2006). The quantitative data uncovered that teachers not only want more time, but want it for collaboration. Teachers collaborated and wanted to do so more often. These quantitative findings were congruent with the interviews and focus groups.

Instructional facilitators were found to be an essential piece of the data puzzle. Using an expert on campus, such as an instructional facilitator, has been suggested as an effective strategy for building capacity in teacher teams and their knowledge of skills and assessments (Love et al., 2008; Ronka et al., 2008). In addition, various teacher leaders such as reading specialists, school improvements chairs, and team leaders were considered supports for teacher data use at the campus level.

Respondents conveyed a need for professional development. Teachers expressed a need for professional development on exactly how to read and interpret data. Principal perception of teacher need of professional development varied between the schools. A few principals stated that teachers welcomed professional development opportunities; others reported teacher apprehension. When studying professional development for teacher data use, Massell (2001) found that such teacher development should align with educational practice. Professional development should be provided for teachers on how to use data as a tool (Laird, 2006).

Barriers existed regarding data and teacher data use. Concerns centered on a sense that data were not particularly helpful and indicated a need by teachers to create their own databases and worksheets. This lack of understanding manifested itself in a distrust of data. Principals reported that teachers did not always see a clear view of the data, either because they did not want to or because there were too much data. One can surmise that these barriers and insecurity with data use in general occurred due to a lack of widespread involvement among teachers and principals. When teachers become involved with data initiatives through collaboration and teamwork, they feel valued and change occurs (Boudett et al., 2008; Wayman et al., 2007; Wayman & Stringfield, 2006).

District Supports

District supports described included specific district personnel, structures in place, professional development, and opportunities to look at data. Themes were conveyed regarding lack of support, alignment, and inconsistency.

DuFour et al. (2006) suggested that it is disingenuous to stress the value of collaboration and fail to provide time for it. Some structures for collaboration were provided by the district, such as structures for monthly professional development activities. Consequently, the structure within the system was not clear, as individual teachers called district personnel when they need assistance on their campuses. Several principals reported that the district offices wanted to help and tried to do so. Principals desired more supports for their schools with collaboration. Additionally, inconsistent structures were noted as principals reflected on the supports the district offered. It was clear that no structures existed to inform the process of supporting collaboration for teacher data use.

Professional development supports were communicated as well. The professional development days and the support the district gave principals were noted as time to work with the teachers. Principals remarked on the support for the time but not on the support of the teaching of the content they were required to offer teachers during professional development days. Steele and Boudett (2008) asserted that such days should be planned and organized for collective, collaborative data use. On the converse, participants reported a lack of relevant, timely data on the professional development days. Data use at different campuses was inconsistent and often tied to the leaders on the campus.

Alignment, done properly, occurs in a collective manner involving all the stakeholders (NAESP, 2008; Wayman & Cho, 2008; Wayman et al., 2006). In NCSD, a lack of alignment was reported. The district was in the process of aligning assessments

to state standards. Another issue was a lack of a district curriculum, which contributed to a lack of clarity with regard to district and state expectations. Similarly, the varied math and reading programs throughout the district fed into frustration with the alignment in the district. Inconsistency was a common theme as teachers described themselves as “independent contractors” of their own curriculum.

Research Question 2: Leadership Supports

Leaders in schools can give support to avoid overwhelming teachers in the process of data use (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006). Leadership supports for teacher data use emerged in two areas in this study: campus leadership and district leadership. Themes reported include professional development, collaboration, structures for data meetings, and provision of data for teachers. Lack of leadership supports was also mentioned.

Campus Leadership Supports

Campus leadership supports manifested themselves in a variety of manners. It was reported that principals planned and engaged with the staff in professional development and collaborative efforts in order to support data use in schools. Lachat and Smith (2005) discussed such leadership supports when they referred to leadership structures that support school-wide data use. Almost all teachers and principals in the current study reported that their faculty meet about data, albeit, some more regularly in a structured manner, and others reported data specific meetings or discussion during staff meetings. Principals were more vocal about time spent meeting with teachers to

discuss data and reported different types of meetings. Some discussed meeting about data three times a year, others more frequently.

An additional professional development support for teachers provided by principals was funding outside consultants. Both teachers and principals reported consultants working with teachers to review data and make plans for teaching and learning.

Structures for collaboration were reported by principals. Most of the structures mentioned were described as vague or loose structures for collaboration. Different leaders created different structures on their campuses. None mentioned involving teachers in development of the structures or goals. Johnson (1996) and Yukl (2006) discussed the necessity of involving all stakeholders in this development.

Some principals reported setting expectations for data use on their campuses. Many commented on the importance of teachers knowing their data and working to develop student goals for progress. Others discussed data being a guiding factor for making decisions on campuses. Wayman and Stringfield (2006) worked with a school that was structured so that data were used in every decision made. It is worthy to note that whereas principals reported on the importance of data, none discussed teacher accountability for data use.

Teachers did not discuss their principals and their expectations, but did offer more information on the School Culture Survey. Teachers were more apt to offer positive information on the survey regarding administrators supporting teachers in the

work of data use as well as developing goals and guiding values. In dialogue, teachers reported no such supports regarding their administrators.

District Leadership Supports

The data collected with regard to district leadership supports were varied and multifaceted. It can be concluded that those closer to the district level have a larger capacity to understand the extent of their supports. Teachers were frustrated with the inconsistency in district leadership in supporting them in their data use. Principals were more positive about the district leadership and its support for teacher data use. Many principals reported the leadership supports they receive from the district as they lead their teachers in data use. District personnel reported frustration with regard to leadership supports for teacher data use. Themes included positive interactions with specific district staff, frustration, inconsistency, and lack of alignment.

Frustration with district officials was reported by teachers. Professional development directives were reported as inconsistent by teachers. Teachers discussed a frustration with alignment of district vision, lack of district curriculum, and more importantly a continual comparison among schools. A sound structural framework (Copland, 2003; Lachat & Smith, 2005; Wayman et al., 2007) was lacking in all of the discussions as well as in the survey data. In the Use and Perception of Education Survey, teachers reported similar frustration with the inconsistency of the district leadership support of teacher data use. Teachers also reported frustration with the district vision and campus vision not being aligned. Wayman et al. (2007) suggested an aligned vision was necessary when supporting data use in schools.

Research Question 3: Technology Supports

Technology supports as well as lack of supports for teacher data use exist in schools (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006; Wayman et al., 2004). Technology promotes efficiency and improves quality in schools (Baker, 2005), while simultaneously manifesting itself as a major barrier (Wayman et al., 2004). All respondents in the study noted a need for a data management system that maintains all the data (Wayman et al., 2004). In NCSD, multiple systems existed and did not communicate with each other. Some school districts are not able to buy a large, costly system, but choose to buy modules that plug into each other (Wayman, 2007).

Teachers

Teachers consistently reported supporting each other. They also reported wanting timely and more user friendly access, professional development, and a system that maintains all the data (Wayman, 2007; Wayman, 2005; Wayman et al., 2004; Wayman & Stringfield, 2006).

Support for each other manifested itself as various teacher leader positions. These local experts were those to whom teachers turn first (Datnow et al., 2007). Whether called reading specialists, technology coordinators, or instructional facilitators, teachers discussed supporting each other. They supported each other during data meetings, created reports for each other, and assisted each other with computer software. These teacher leaders were often the providers of technology and supported each other by creating and interpreting reports. Wayman et al. (2006) suggested focusing teachers through collaborative educator teams. They realized that in teams

teachers build relationships and as a result are better equipped to work through the data use process.

A need for timely and more user-friendly access of student data was also discussed by teachers. Teachers noted that a system would provide the most support if it maintained all the data. Student data systems can deliver data to teachers in a user-friendly manner (Datnow et al., 2007; Wayman et al., 2004). They also wished for a system in which a page on the computer would contain all the information pertaining to an individual student, including test scores and educational data. Teachers also discussed a need to be included in the committee that decided the computer system for the school. Recognized among teachers was also the need for colleague buy-in and commitment.

Researchers have proposed that the most effective data use occurs when all teachers are involved in the initiative (Wayman, 2005; Wayman et al., 2004). The data gathered from the Use and Perception of Education Survey mirrored the dialogue, as teachers noted that computers were not user friendly.

Teachers also reported a need for technology professional development. The aim for this development was to understand the data and the reports more effectively and efficiently. Such professional development has been found to support teacher data use and inevitably shorten a teacher's workday (Wayman et al., 2007; Wayman & Stringfield, 2006). Also included in these discussions was the difficulty in obtaining the data efficiently with multiple computer systems in the district (Wayman, 2007).

Professional development for teachers on how to utilize data as a tool and to support them in doing so is essential (Armstrong & Anthes, 2001; Laird, 2006).

Principals

Principals can be key enablers in the data use process; empirical research suggests that principals who use and understand the data system are better equipped to lead a faculty in data use (Wayman, 2007). Principals discussed district support, instructional facilitators, professional development, and a need for a computer system to access data quickly (Wayman, 2007; Wayman, 2005; Wayman et al., 2004; Wayman & Stringfield, 2006). Principals reported district officials as providers of data to schools. The data arrive in the form of state testing reports and growth assessment reports. Principals acknowledged that the district would like to provide more supports for teachers.

Principals discussed instructional facilitators as a technology support for teachers. Again, they provided reports for the teachers and assisted teachers in analyzing the data. These technology support personnel have various responsibilities (Killion, 2008). Principals referred to the instructional facilitators as providers of data and data reports. In fact, most principals viewed them as facilitators of reports rather than of data and people. Wade (2001) and Wayman & Stringfield (2006) challenged schools to include as many teachers as possible in order to thoroughly support data use. Wayman et al. (2007) provided a framework for defining the position of instructional facilitator.

Principals revealed that technology professional development was necessary to support teachers. They surmised that engaging in professional development would improve not only how teachers worked with technology, but also how they would make decisions for student learning (Wayman & Stringfield, 2006).

An integrated data management system was consistently referred to as a need by principals. Such system is an early consideration when schools are serious about data (Wayman et al., 2004). They discussed a need to view one student per page, as well as access data quickly. Also a consideration was obtaining a system that was multifaceted and able to integrate the various assessments at the different campuses. A number of computer systems purport themselves to deliver student data to teachers (Mieles & Foley, 2005; Wayman, 2007; Wayman et al., 2004).

District Personnel

District personnel expressed a desire to provide assistance, a need for a new data management system, and sense of progressing in the right direction. District personnel expressed a need to access the data in a timely manner (Wayman et al., 2004), as well as to have a system with different levels of access for the various positions in the district. Lack of easy technological access has been noted as a hindrance to effective data use (Halverson et al., 2005; Supovitz & Klein, 2003). District personnel articulated a desire to better support teachers through technology. They described the training they provide for teachers and their frustration with lacking the capability to access reports and data in a timely manner. Similar to this study,

Wayman & Stringfield (2006) found that teachers wished for instant feedback on student learning.

A need for equipment for communication and integration of data was expressed by district personnel as well. While teachers, principals, district personnel had different names for it, they all desired one management system. Such technology is essential when supporting data use (Wayman et al., 2004). Several district personnel discussed at length the need for one integrated computer system. Datnow et al. (2007) concurred when they asserted that investment in a user-friendly system was one of the most important actions a school district could take.

District personnel reported a sense of shifting the proper direction for technology use. Some remarked about understanding the direction in which technology is guiding the district. Others discussed being on the right track and moving in the right direction. District personnel indicated pockets of excellence in technology and that some teachers were becoming more willing to participate in discussions involving data. District personnel also detailed the importance of recognizing the varying levels of teacher ability with regard to technology and data use. Providing easy access to this data is a crucial function of a data system (Chen et al., 2005; Wayman, 2007; Wayman et al., 2004). Addressing the various levels and needs of teachers through technology support can improve teaching practices (NAESP, 2008).

Implications

Two implications emerged in collection of data during this study. First, structures and systems for data use must be intentional in order to support teacher data use in schools. Several elements were found to contribute to structures and processes being intentional: time for collaboration; professional development to build teacher capacity; and clearly aligned district vision, mission, and goals (Armstrong & Anthes, 2001; Ingram et al., 2004; Lachat & Smith, 2005; Wayman et al., 2007). The second implication is that technology support in the classroom is integral to effective teacher data use. This support appears in the forms of hardware and personnel support. Hardware includes having the appropriate system that maintains the student data, timely access to data, and a user-friendly format (Chen et al., 2005; Earl & Katz, 2002; Wayman, 2004). Personnel support refers to the integration of technology into teaching and learning, teacher-to-teacher support, and an alleviation of distrust through positive interaction with data.

Implication 1: Structures and Systems for Data Use Must Be Intentional

Structures and processes can create the intentionality necessary for thorough data use in schools. Structures are necessary for supporting and training teachers in effective data use (Armstrong & Anthes, 2001). Examples of such structures found in this study are time for collaboration, professional development, and alignment of district vision and goals. Campus and district leaders play an essential role in the creation and maintenances of these structures and processes for data use (Lachat & Smith, 2005; Wayman et al., 2007; Wayman & Stringfield, 2006). Within these

structures data must be routinely studied and used to make future decisions. It is also vital that teachers participate in the creation of the structural framework for data use (Wayman et al., 2007; Wayman et al., 2006).

In the current study, NCSD provided no such specific structures to support teacher data use. While district staff created some structures, most were depicted as vague or loose structures for collaboration. Different leaders created different structures on their various campuses. Overall, there was a lack of consistency as well as no sense of urgency. Supovitz and Klein's (2003) study found that although some teachers used data to inform their practice, few school-wide efforts were in place to facilitate the process. It is imperative to have a school-wide structure in place to facilitate teachers using data to inform their practice (Supovitz & Klein, 2003). Additionally in these structures, data should support and improve the work of teachers (Wayman et al., 2007). Three elements were found to contribute to structures and processes being intentional: (a) time for collaboration; (b) professional development to build teacher capacity; and (c) clearly aligned district vision, mission, and goals.

Time for Collaboration

Teachers and principals reported time for collaboration as a necessary support. They gave examples of structures in use and noted that they wanted more time than was structured currently. Repeated discussion of time and collaboration occurred in both the quantitative and qualitative collection of data. Intentional collaboration by teachers for the purposes of understanding data is an integral structure necessary when supporting teacher data use (Love, 2000; Sunderman et al., 2006; Wayman et al., 2007; Wayman

& Stringfield, 2006). This collaboration among teachers has been determined to be an arduous task for teachers, yet works well when centered on data use (Chen et al., 2005; Wayman et al., 2006; Wayman & Stringfield, 2006; Young, 2006). As teachers in NCSD engage in thorough data use, it becomes part of professional, collaborative cultures (Chen et al., 2005; Feldman & Tung, 2001; Symonds, 2003; Young, 2006).

Structuring time for collaboration during the school day, such as a common planning or preparation time for teachers or other restructuring by the principals, is an imperative step in the process. This time for collaboration has been found to be necessary when supporting teachers (DuFour et al., 2006; Lachat & Smith, 2005; Wayman & Stringfield, 2006). While participants reported this occurring regularly on some campuses, clearly defined collaborative structures must be in place to be intentionally successful in this endeavor with regard to data use.

Lack of time was cited as a barrier to teacher data use in schools and is important to consider as structures and processes are put into place. Lack of time is consistently cited as a barrier to teacher data use in schools and simultaneously a necessary factor when addressing collaboration in schools (Ingram et al., 2004; Lachat & Smith, 2005; Marsh et al., 2006). There are a variety of ways in which to manage the time (DuFour et al., 2006; Lachat & Smith, 2005; Wayman et al., 2007). School staff in NCSD discussed several ways that they structured time. Focus groups and interviews pointed to time, and in the survey data teachers reported wanting more time, particularly for collaboration. Most of the structures mentioned were described as vague or loose structures for collaboration. As members of such collaboration

initiatives, teachers can gain knowledge that translates into student improvement (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006). Intentional structures are necessary to provide time as a factor in the support of data use.

Professional Development to Build Teacher Capacity

Teachers are being required to use data and are unprepared to do so (Ronka et al., 2008; Wayman et al., 2007). In order to build capacity teachers should be in a system that holds them accountable to using data. The first step to teacher accountability is to provide the necessary professional development that builds capacity for teacher data use in schools.

Professional development supports were noted by teachers and principals. Principals remarked on the support for the time, but not in the support of the teaching of the content they were required to offer teachers during professional development days. Thus, there should be intentionality in preparation of the learning to occur during professional development time. It has been found that teachers have difficulty matching interventions and strategies to the data given to them (Armstrong & Anthes, 2001). NCSD could provide that professional development support to all members of the organization.

Principals reported inconsistent professional development from the district. Principals reported that the district was attempting to assist the campuses with teacher data use. Although the district provided opportunity, there was inconsistency in the delivery and method. A structured, purposeful, staff development plan is a necessary support for teacher data use (Wayman et al., 2007; Wayman & Stringfield, 2006). The

teachers in this study wanted and needed more professional development in effective data use methods. Many of these same teachers felt unguided and in need of assistance.

Leaders in NCSD should provide continuous professional development for teachers on how to use data as a tool (Laird, 2006), which ultimately will build capacity. Love (2000) stated schools often lack the organizational structures to utilize and study data effectively. Professional development can be the setting in which school leaders recognize that collaborative inquiry requires sufficient time for teachers to have data-driven conversations (Lachat & Smith, 2005). McLaughlin and Talbert (2006) suggested establishing a cycle of inquiry in sustaining school improvement and discussed the cycle being aligned with the overall school goals. A significant step with regard to professional development would be a district professional development plan. The campus plan then would align with the district. This critical plan development would contribute to the intentional structures and process mentioned prior. Researchers have described instances in which data initiatives are ineffective because such structures are not established by campus leadership (Wayman et al., 2007; Wayman & Stringfield, 2006).

Clearly Aligned District Vision, Missions, and Goals

A common vision with specific goals regarding the education of children is crucial in a school district (Carter & Cunningham, 1997; Sergiovanni, 1996). Quite the opposite was reported in NCSD, including a lack of clarity of state and district expectations. A lack of communication and lack of shared visioning occurred in NCSD. Many campus respondents reported not being familiar with the district vision, mission,

and goals. District personnel were more likely to recognize the vision, mission, and goals because of their proximity to the leader who created them.

Different vehicles exist for creating and aligning vision and mission, but the process should occur in a collaborative manner (NAESP, 2008; Wayman & Cho, 2008; Wayman et al., 2006). Leaders in NCSD need to involve all stakeholders in developing goals and strategic plans (Johnson, 1996; Wayman & Stringfield, 2006; Yukl, 2006). When teachers are a part of that which they create, they are more likely to perpetuate the shared beliefs.

Promoting data use requires a clear, aligned, and supported vision for teaching and learning (Knapp et al., 2006; Supovitz & Klein, 2003; Wayman et al., 2007). Fairman and McLean (2003) asserted that aligned with the vision are the right structures and processes. The structures and process contribute to the mission and support it through intentionality of practice.

Once vision and mission are defined, the leader's responsibility is to align the structures and systems to pave the pathway for success (Fairman & McLean, 2003). Covey (1999) referred to the "Six Rights" that define alignment: (a) right processes, (b) right structures, (c) right people, (d) right information, (e) right decisions, and (f) right rewards. Thus, in an aligned system the right mission is guided by the right structures and processes. The right people have to know what the vision is and be part of its creation in order to be connected as a school culture.

Consequently, a set of values and norms that are productive, connected, and aligned with the core vision and mission are necessary as schools create a positive

culture (Deal & Peterson, 1999). Sergiovanni (1996), Schmoker (2004), and DuFour et al. (2006) have emphasized the importance of a collaborative work environment and building a positive culture.

Implication 2: Technology Support in the Classroom is Integral

Technology support in the classroom is integral to data use. This support arrives in the form of hardware support and personnel support.

Hardware Support

Hardware support includes having the appropriate system that maintains student data. Timely access to data and a user-friendly format are also necessary to support teacher data use (Wayman et al., 2004).

A necessary hardware support is first and foremost a data management system that maintains all student data. A need existed for a student information system that could provide real-time accounting of daily school function. When supporting teachers in data use, teachers expressed a need to obtain all assessment data in one location, or in one combined system. The current system in NCSD was reported as not being easy to utilize.

Data-warehousing applications can assist in providing data disaggregation that is critical for data use in school (Mieles & Foley, 2005; Wayman et al., 2007; Wayman et al., 2004). This application would require different levels of user access in a new system. Query tools should be able to differentiate according to the needs and purpose of the user (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006) and could be a crucial component for NCSD.

Timely access to data is also a necessary hardware support. School personnel reported a lack of timely access to data in NCSD. Teachers noted that a system would provide the most support if it maintained all the data. They also expressed a need for a system in which a screen on the computer would contain all the information pertaining to an individual student, including test scores and educational data.

Teachers also discussed a desire to be included in the committee that decided on the computer system. As teachers are involved in such committees, they are able to gain knowledge that inevitably translates into student improvement (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006). Recognized among teachers was the need for colleague buy-in and commitment. Wayman (2005) also proposed that teachers be involved in data initiatives.

In addition to timely access, the current data in NCSD needed to be available in a user-friendly manner. It is best for teachers when these data are structured in a user-friendly manner that allows easy access to all available student data (Earl & Katz, 2002; Wayman, 2007). Providing this access for teachers is an integral part of any data-management system (Chen et al., 2005; Wayman, 2007; Wayman et al., 2004).

Personnel Support

Personnel support refers to the integration of technology into teaching and learning, teacher-to-teacher support, and an alleviation of distrust through positive interaction with data. Integration of technology into teaching and learning is an essential personnel support for teacher data use in schools. Teachers expressed a need to understand data and better utilize it. Principals discussed that technology

professional development was a basic support for teachers, as they learn how to utilize data to make decisions for students. It is necessary to assist teachers in understanding and using this technology in the classroom (Lachat & Smith, 2005; Wayman, 2007; Wayman & Cho, 2008; Wayman et al., 2007; Wayman & Stringfield, 2006).

Teacher-to-teacher support was found to be integral in NCSD schools and revealed itself in a variety of formats. Teachers reported supporting each other in data use. Support for each other manifested itself as various teacher leader positions. Whether called reading specialists, technology coordinators, or instructional facilitators, teachers discussed supporting each other. At times these teacher leaders were the providers of technology and supported each other through creating and interpreting reports. No matter the title, a teacher data facilitator has been suggested as an effective strategy for providing professional development and building capacity in data teams' knowledge of skills and assessments (Love et al., 2008; Ronka et al., 2008).

Proper time and structure be given to teacher leaders in order to facilitate assisting the teaching staff (Boudett & Steele, 2007; Lachat & Smith, 2004; Love et al., 2008). The data coach can organize and analyze a school's data as well as offer direct data-use support to teachers and improve practice (Wayman et al., 2007). This coach supports teachers and administrators in using data to improve instruction on all levels. Phasing out these supports is another way to build teachers' capacity in schools (Toll, 2005; Wayman et al., 2007).

Another personnel hardware support is observable through relationships between people and technology. Constructive interactions with data through technology can

reverse the uncertainty. An alleviation of this distrust of data and technology can occur when teachers engage in positive interaction with the two. Some teachers reported negative experiences with regard to district technology supports for their data use. Also discussed was a lack of district data, and blame was placed on the varying school programs and initiatives. These negative encounters can perpetuate a climate of mistrust (Ingram et al., 2004).

Other teachers only wanted to use data reports if they were a positive reflection of their teaching; others were concerned about what the data said about their colleagues, supporting prior research (Ingram et al., 2004; Lachat & Smith, 2005). There are a variety of ways teachers can realize improvement by being involved with a data initiative (Chen et al., 2005; Lachat & Smith, 2005; Wayman & Stringfield, 2006). If provided easy access to the data through technology, teachers can engage in affirming experiences. The only way to alleviate negative experiences is to replace them with those that are positive.

Recommendations for Future Research

Several factors influence teacher data use in schools (Armstrong & Anthes, 2001; Ingram et al., 2004; Lachat & Smith, 2005; Wayman et al., 2007). It would be educationally sound to continue to research individual school districts and their processes for data use. A follow-up study of NCSD also would be beneficial. Such further study could test the suggestions made by Wayman et al. (2007) and the propensity for data use based upon the suggestions made by the research team.

An additional study that would be a fundamental continuation of the present study could explore the structures and systems for data use and to what extent personnel drives the implementation. In essence, how does having the right people in the right positions affect the process? In schools and districts educators engage in initiatives for short periods of time. These initiatives promise to transform the very cultures that inevitably could destroy them.

The question remains how to measure the impact of data-warehousing systems on teaching and learning. If school districts value what these systems measure, it is imperative to study how teachers respond to the data they receive, or if they change their instruction at all. Questions similar to the following could be asked:

1. What data do you use to understand your students?
2. How do you access those student data?
3. How do you modify your instruction based upon your data?
4. What structures and systems assist you in deciding how to transform your craft?
5. Do the data change your practice in the classroom, and how?

It would be beneficial to study structural capacity for data use and further to study school districts that are successful data-driven entities. Such future studies could identify those tasks involved in data use and the manner in which leaders in successful district utilize their staff. Research has revealed the significance of user-friendly computer data-warehousing systems to increase data use (Wayman et al., 2004). Does

having such a computer system increase data use in all cases? Would there be a case in which it would not be as significant?

As researchers investigate data in the future, it will be essential to explore all the facets of teaching and learning. As schools evolve, so will data. Inevitably, data will become as intricate and diverse as the students attending schools.

APPENDIX A

TEACHER INTERVIEW PROTOCOL

Try to make this go fast if you can

- I'm _____, working with Jeff Wayman at the University of Texas at Austin
- Dr. Wayman was asked by Natrona County Schools to assemble a research team to evaluate NCSd data use.
- NCSd understands data are part of their future. They're exploring how to use these data efficiently, to help educate, rather than just responding to reporting mandates or giving teachers more to do.
- To help with this, NCSd wanted to have a completely impartial, third-party evaluation of data use in NCSd. So they hired us.
- As part of this, we're interviewing various stakeholders about data use in NCSd – teachers are a critical group to include.
- For the purposes of this evaluation, "data use" is defined as any information that helps educators, schools, and the district do their jobs. Most data will be student data – achievement tests, periodic learning assessments, dropout, free lunch, parental information, disciplinary information, etc. But we're taking a broad view of "data."
- Interview will take about 20 minutes (**Make sure how much time they have!**)
- Your responses will be analyzed with the rest of the data; we'll keep anything confidential that you ask us to.
- In order to better analyze the data, we'd like to record this conversation – ok? The recorder can be turned off anytime you like.
 - If they press it, only the research team will ever hear this conversation.
 - The less said, the better.

This is probably the most difficult interview to cover, because it's hard to say when each will pop up. There are a lot of questions that may run together; definitely don't plan to go down the list of questions or you'll quickly run out of time.

Be sure to ask up front how much time they have – have in mind the critical points you need to address so you'll have them done in case they need to bolt. Here are the general pieces of information we want to get out of this interview:

- *How they use data and what it does for/to them: How much of a burden is time? What do they use and really find useful? How do they access it? What do they need, in the near and far future? What would make their job really good? Do they like it? Do they have enough skills and resources to adjust their teaching based on data?*
- *What sorts of support they have for current and future competency: Do they actually have any skills? Where are they learning skills? Who helps them?*

Are they happy with opportunities to get skills? What do they feel about PD? What would be useful PD for them? Do they collaborate and do they want to? Is their principal a barrier or facilitator? Is the district a barrier or facilitator?

- *What they'd really like to have: Daydreaming for the future. This should have been mostly covered with the prior items; but asking the question point-blank is important and should give you a short answer. Be comfortable with "I don't know."*

For the record, I'm talking to _____, _____ teacher at _____ school. (Maybe this is a good time to briefly note you're working on a PhD and work(ed) in schools?)

- **Ask about them**
 - Must have: How long they've been a teacher.
 - Must have: How long they've been teaching at that building.
 - Other experience or any other things you feel like asking them.
- **What are the most exciting things happening in NCSd right now?**
 - In their building? You decide if you want to ask this.
- **How do you interact with NCSd data in your job?** Listen for...
 - What's good about it?
 - What's hard about it?
 - How they use it (what use they make of it)
 - How it helps or hinders them in their job

(Probe for further info on these two items.)

- What specific types of data do you access or use?
 - Listen for the usual suspects
 - Listen for building-specific measures
 - Listen for things they may have created on their own.
 - Listen for what they really like to use and what's useful to them.
 - Listen for how they access – computer? Paper reports? Someone else's help?
- What computer systems do you use for accessing data?
 - How they use them
 - How often
 - What they like and dislike

- Anything they invented and use on their own (e.g., Excel sheets)

These may have been addressed in the question before. They'll probably run together, so make sure you get decent information on each.

- **Who helps you use data?** (Individuals, but be open for responses from the next two questions.)
 - If they don't mention it, ask specifically for principal and Instructional Facilitators
 - Others could be other teachers, counselors, district people, etc.
- **How does your principal lead your faculty in data use?**
 - What strategies they use (e.g., collaboration, faculty meetings, facilitators)
 - What help they give
 - What's good and bad about it?
- **Do you feel like you have enough skills in data use?** Probe the following as needed...
 - Training in their degrees, workshops, whatever
 - Help the district has given them
 - Where they've accumulated their knowledge.
 - What they think they might need.
- **Does the district support teachers well in using data?**
 - Must have: How's the Professional Development in general and for data use?
 - If they haven't already covered it, computer systems provided by the district.
 - Instructional Facilitators.
- **In your perfect world, how would you and your school use data?**
 - If they're confused, give examples, "maybe your district would provide you a fantastic computer system, maybe your faculty would be using this collaboratively every day, maybe you'd like it to just go away."
 - What does the district need to do for you?

Pursue the following if you have time:

- **Is there a district vision for student learning? Teaching? Conduct of education?**
- **Do you adjust your teaching practice based on data?**
- **Do you differentiate instruction based on data?**
- **Is there anything else you'd like to add?**
- **Thank you for your time.**
 - We'll be visiting May 15 – 18, so maybe we'll get to meet.
 - We'll conduct face-to-face interviews and focus groups; it's possible some of your teachers may be chosen for that.
 - If you'd like to contact me, you've got my email and/or phone number, etc.

APPENDIX B

PRINCIPAL INTERVIEW PROTOCOL

This looks longer than it is. In fact, if you went through and discussed each question verbatim, you'll go quite a bit longer than 30 minutes. You'll notice, however, that many of the questions won't be asked as they are, but will be asked when building upon other responses. So, be ready to pursue something no matter when it comes up – your interview will go smoother and yield more info. Here are the general pieces of information we want to get out of this interview:

- *How they use data and what it does for/to them: What do they use and really find useful? How do they access it? What do they need, in the near and far future? What would make their job really good? Do they like it?*
- *What sorts of support they have for current and future competency: Do they actually have any skills? Where are they learning skills? Are they happy with opportunities to get skills? What do they feel about PD? What would be useful PD for them? Do their teachers have skills and are they getting more?*
- *How they lead their faculty in data use: What do they think their (a) faculty should be doing? What strategies do they use? What do they think their teachers are capable of now and in the future? Are they hopeful it will affect teaching and learning?*
- *What they'd really like to have: Daydreaming for the future. This should have been mostly covered with the prior items; but asking the question point-blank is important and should give you a short answer. Be comfortable with "I don't know."*
- **For the record, I'm talking to _____, principal at _____.** (Maybe this is a good time to briefly note you're working on a PhD and work(ed) as a building administrator?)
- **Ask about them**
 - Must have: How long they've been at that building
 - Must have: How long as a principal
 - Other experience or any other things you feel like asking them.
- **What are the most exciting things happening in NCSd right now?**
 - In their building? You decide if you want to ask this.
- **How do you interact with NCSd data in your job?** Listen for...

- What's good about it?
- What's hard about it?
- How they use it (what use they make of it)
- How it helps or hinders them in their job

(Probe for further info on these two items.)

- What specific types of data do you access or use in your building?
 - Listen for the usual suspects
 - Listen for building-specific measures
 - Listen for what they really like to use and what's useful to them.
 - Listen for how they access – computer? Paper reports? Someone else's help?
- What computer systems do you use for accessing data?
 - How they use them
 - How often
 - What they like and dislike
- **Are you well-positioned to make effective use of data?** Probe the following as needed...
 - Do you have the right preparation/background to effectively use data?
 - Training in their degrees, workshops, whatever
 - Help the district has given them
 - Where they're getting their knowledge.
 - What they think they might need.
 - Do *you* and *your teachers* get enough Professional Development?
 - What the district does
 - Where they're getting their knowledge
 - What they think they might need.
- **How do you lead your faculty in data use?**
 - What do they expect out of them?
 - What's hard and easy about it?
 - What strategies do they use (e.g., collaboration, faculty meetings, facilitators)

- **In your perfect world, how would you and your school use data?**
 - If they're confused, give examples, "maybe your district would provide you a fantastic computer system, maybe your faculty would be using this collaboratively every day, maybe you'd like it to just go away."
 - Must have: what does the district need to do for you.

Pursue the following if you have time:

- **Is there a district vision for student learning? Teaching? Conduct of education?**
- **What principals or schools do you know of that are doing really well with data use?**
- **Is there anything else you'd like to add?**
- **Thank you for your time.**
 - We'll be visiting May 15 – 18, so maybe we'll get to meet.
 - We'll conduct face-to-face interviews and focus groups; it's possible some of your teachers may be chosen for that.

If you'd like to contact me, you've got my email and/or my phone number, etc.

APPENDIX C

TEACHER FOCUS GROUPS

Introduction to the Focus Group

Try to make this go fast if you can, but make sure they know what we're doing.

- Introduce yourself and the project. Here's a possible way to do that:
 - Data are here to stay – and that should be a good thing because we all are better teachers when we know more about our students. However, it's been hard to do because colleges don't prepare us well, some of the data we use don't measure student learning very well, and some computer systems are hard to use.
 - Rather than just muddle through, NCSD wants to get this right. So they hired us to do a district-wide evaluation of all aspects of their data use. With this information, they're going to create better data and better processes.
 - As part of this, we want to know what's going on in the classroom. So you were randomly selected to participate in this group.
- We're going to have a conversation about what you do with data, what you like about it, what you don't, etc. We have until XXX time.
- For the purposes of this evaluation, "data use" is defined as any information that helps educators, schools, and the district do their jobs. Most data will be student data – achievement tests, periodic learning assessments, dropout, free lunch, parental information, disciplinary information, etc. But we're taking a very broad view of "data" for our conversation.
- In order to better analyze the data, I'm recording this conversation, and if someone's not comfortable with that, please say so now. The recorder can be turned off anytime you like.
- Only the research team will ever hear your comments today. We will summarize all the information we gain in all of our interviews, and may quote some of it directly, but nobody will ever be able to identify you.
- To start, I'd like everyone to say their name and what they teach – again, your name will only be known to us and used to help us analyze the data better.

Informal Information about the Focus Group

This is probably the most difficult interview to cover, because it's hard to say when each will pop up. There are a lot of questions that may run together; definitely don't plan to go down the list of questions or you'll quickly run out of time. As with the phone interviews, here are the general pieces of information we'd like to get – but each group's going to go in a different direction:

- **How they use data and what it does for/to them:** This is the crux of the focus group. How much of a burden is time? What do they use and really find useful? How do they access it? What do they need, in the near and far future? What would make their job really good? Do they like it? Do they have enough skills and resources to adjust their teaching based on data? Do they adjust their teaching?
- **What sorts of support they have for current and future competency:** Do they actually have any skills? Where are they learning skills? Who helps them? Are they happy with opportunities to get skills? What do they feel about PD? What would be useful PD for them? Do they collaborate and do they want to? Is their principal a barrier or facilitator? Is the district a barrier or facilitator?
- **What they'd really like to have:** Daydreaming for the future. This should have been mostly covered with the prior items; but asking the question point-blank is important and should give you a short answer. Be comfortable with "I don't know."

Here are some things that may come up:

- Student histories – whether they use them or would like to
- Formal learning assessments – what they'd use, what they'd like
- What do they think about their current state and district assessments.
- Timely data – or "DOA data"
- The friction between time spent testing and time spent teaching.
- What they would like to see: both in data and a data system
- How they feel about data and data use
- Does anyone use their own assessments or data points?
- Professional development – what they get, what they'd like
- Whole child
- Instructional facilitators
- How they change their teaching

General -Focus Group Questions

Here are the “must-haves:”

- **What are the most exciting things happening in NCSD and their building right now?**
- **How do you interact with NCSD data in your job?** Listen for...
 - What’s good about it?
 - What’s hard about it?
 - How they use it (what use they make of it), e.g.:
 - Adjust teaching practice based on data?
 - Differentiate instruction based on data?
 - How it helps or hinders them in their job
 - Who helps them
- **What specific types of data do you access or use?** Get as many of these as possible:
 - Building-specific measures
 - Things they may have created on their own.
 - What they really like to use and what’s useful to them.
 - How they access – computer? Paper reports? Someone else’s help?
 - Always press: *what data?*
- **What computer systems do you use for accessing data?**
 - How they use them
 - How often
 - What they like and dislike
 - Anything they invented and use on their own (e.g., Excel sheets)
 - Always press: *what systems?*

Here are the “could haves:”

- **Who helps you use data?**
- **How does your principal lead your faculty in data use?** (Strategies, help, etc.)
- **Do you feel like you have enough skills in data use?** (Training, PD, etc.)
- **Does the district support teachers well in using data?**

- **Is there a district vision for student learning? Teaching? Conduct of education?**
- **Does data help you be a better teacher?**
- **In your perfect world, how would you and your school use data?**

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Mary Johnston is an elementary school principal in Carroll ISD in Southlake, Texas. She is in her eighth year as a school administrator. She received her Master of Educational Administration from Texas Christian University and her Bachelor of Arts from The University of Texas at Arlington. Mary also has worked in Dallas ISD, Birdville ISD, and Trinity Valley School. Before becoming an administrator, Mary served as a Spanish teacher working with students in all grade levels.

In March 2008, Mary received second place from the American Educational Research Association for Outstanding Publications Development for Small District Research, Evaluation, Assessment, and Accountability Reports. She won District 11 Assistant Principal of the Year and in 2008 was named District 11 TEPSAN Principal of the Year.

Mary has served on the Board of Education in Action since 2003. She is the District 11 Past President of Texas Elementary Principals and Supervisors Association (TEPSA). She serves on the TEPSA State Board as the Chair of the Membership, Marketing, and Public Relations Standing Committee. She has provided professional development for principals regarding effective leadership, school climate, and managing and motivating teachers.

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This treatise was typed by the author.