Principals' Use of Data: A National Perspective

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ABSTRACT

The traditional role of America's principals is changing. The educational reform movement defines principals as instructional leaders responsible for creating professional learning communities in which learning and quality instruction are priorities. National standards for school leaders include the use of data as a resource for instructional leadership. Additionally, new principals are entering the field rapidly. Previous research on the use of data by principals is twenty years or older. This study updates prior research and contributes to a national perspective of the use of data by principals. This study presents two research questions that guide (a) a description of how principals vary in their use of data and (b) the determination of the relationship(s) between predictor variables and principals' use of data. The method used was survey research and included both descriptive and correlational statistics. A national sample of principals randomly selected by the National Association of Elementary School Principals (NAESP) responded to a questionnaire developed for this study. Findings of the survey showed that principals are embracing the role of instructional leader and are using data in various ways. Additionally, this study determined that principals' attitudes, self perceptions, professional development experiences, characteristics of their school districts, and personal competencies with data proved statistically significant with influencing their use of data. However, characteristics of their individual schools where principals worked were not found to be statistically significant. This study is important because it provides useful information for planning both principal preparation programs that target aspiring principals and for planning continual staff development for practicing principals.

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CHAPTER I

INTRODUCTION

> " If we could do only one thing to build school capacity, we would develop a cadre of
> leaders who understand the challenges of school improvement, relish academic achievement,
> and rally the stakeholders to higher standards of learning" (Consortium on Renewing
> Education, 1998, p.35).

The 1983 publication of *A Nation at Risk*, 1986 "Holmes Commission Report", and the
1986 "Carnegie Task Force Report on Teaching" generated an urgency to change the way
American schools do business. These reports and the response of the media, politicians, and the
American public launched the current school reform movement. From the reform effort, several
themes emerged to describe the state of public education. The themes involved student
achievement, preparation and performance of teachers, and educational leadership. Consequently
these themes have driven the development of increased performance standards for students,
national professional standards for teachers and principals, and a new role for principals. The
context of this dissertation encompasses the changing role of principals and how these school
leaders are asked to use new definitions, skills, and tools to improve the quality of American
education.

It is rational to assume that better school leadership will improve the quality of education.
Principals are responsible for creating a school environment that enables teachers and students to
go about the process of teaching and learning. The culture of a school is defined by how the

principal prioritizes tasks, develops the processes that are to be used to complete the tasks, and identifies the relationships that are established and nurtured.

Business leaders also viewed educational leadership as important for school reform. John Pepper, CEO of Procter and Gamble, saw the need to focus on increasing the skills of school leaders. At the 1999 National Educational Summit in Palisades, New York, he said, "Improving the quality of principal leadership and training must go 'hand-in-hand' with raising teacher quality if we are to improve student learning" (National Council of Staff Development, 2000, p. 2).

The adoption of standards-based education is a strategy used by policy makers to raise the level of achievement of America's students. Standards-based education called for a change in the way principals do their work. The role that was traditionally defined as a manager and chief disciplinarian has shifted to instructional leader. Cross and Rice (2000) described leadership provided by principals in a standards-driven educational system. They stated that these principals provide instructional leadership by making learning a priority and working to motivate both teachers and students. Instructional leaders understand the theory of change that must accompany a shift to standards-based programs and identify teachers who act as an academic team and who demonstrate an understanding and commitment to content standards and assessment of student progress. Such principals use content and performance standards to help students, teachers, and parents to understand the learning target, to identify where individual students are in relationship to the target, and to plan the necessary interventions to move students to the desired level of performance. Continual improvements in student learning and the pursuit of excellent teaching are agenda items for principals in standards-based schools. All of this is accomplished by

engaging others in collaborative, collegial relationships where all stakeholders seek resolutions of issues that inhibit effective teaching and learning.

This role of instructional leader required principals to use new skills, attitudes, and tools. The Interstate School Leaders Licensure Consortium (ISLLC) (1996) acting with the guidance from the Council of Chief State School Officers drafted national standards for school principals. These standards were stated in general terms with specific descriptions concerning the knowledge, dispositions and performances required of school principals if they are to meet these standards. The ISLLC standards made the changing role of the principal explicit.

Two of the ISLLC standards referred specifically to the use of data with instructional leadership and decision-making. Standard I called for principals "to promote the success of all students by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by the school community" (p. 10). The same standard described principals needing an understanding of and knowledge of information sources, data collection, and data analysis strategies. Principals need dispositions that enable them to believe, value, and show commitment to continuous school improvement. Additionally, principals are asked to facilitate and engage in activities that relate assessment data to student learning and to use data to develop the school vision and goals. Relevant demographic data pertaining to students and their families and student performance data are sources principals are asked to use to develop the school mission and goals. These same sources are valuable for principals to monitor, to evaluate, and to revise the school vision and mission as needed.

Standard II explicitly stated the principal is "an educational leader who promotes the success for all students by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth" (p. 12).

Principals are asked to demonstrate knowledge and understanding of effective instruction, measurement, evaluation, and assessment strategies. Principals should engage in processes and activities which ensure that curriculum decisions are based on research, the school culture is assessed on a regular basis, a variety of sources of information is used to make decisions, and student learning is assessed using a variety of techniques and multiple sources of information.

Similar to the ISLLC standards are the standards for school leaders developed by the National Council for the Accreditation of Teacher Education (NCATE) (2000). As with the ISLLC standards, embedded in several of the NCATE standards is the use of data to set goals, to plan school visions, and to inform instructional practices. Standard I called for school leader candidates to be prepared to promote the success of all students by developing, articulating, and implementing a school vision of learning that is shared and supported by the school community. Indicators of this standard are school leaders drawing on relevant information sources such as student information results and demographic data pertaining to students and their families and using student assessments to determine challenging standards. Similar to the second ISLLC Standard, Standard II of the NCATE standards called for school leaders to advocate, nurture, and sustain a school culture and instructional program conducive to student learning and staff professional growth. Again, indicators of this standard embed the use of data as candidates are asked to use multiple methods to assess and create the school cultures that recognize diversity, to implement a sustained approach to improvement, and to use qualitative and quantitative data, technology, and information systems to develop long range plans (http://www.ncate.org). These standards direct the job of principals to place teaching and learning as the focal points of schools. In keeping this focus, school principals are responsible for ensuring that curriculum, instructional

decisions, and professional development are based upon research, professional literature, and school and district data.

Many educational reformers propose that schools are businesses that should function more like businesses by emphasizing results, productivity, and profit. Business leaders have long used data to solve problems and to increase both productivity and profit. However, data in the business world are usually numerical. In the world of education, data sources available for principals and teachers include not only numerical data but also qualitative sources of information such as samples of student work and observations. The consideration and discussions of results with student learning, productivity of staff, and yields of student growth require the inclusion of data in educational settings in ways that are similar to those used in business settings. For principals to lead others to understand data, identify patterns, and create action plans based upon data as described in the national standards for school leadership, changes are needed in the cultural and the organizational aspects of educational settings. To affect these changes, principals and teachers need adequate preparation.

The shift from manager to instructional leader will not happen quickly. Principals must clearly understand the need for this change and then create a framework and forums for discussion to begin this change. The skills and proficiencies identified in the professional standards must be modeled and nurtured in professional training for principals. Universities and school systems must target the selection of promising candidates and provide different learning experiences for both aspiring and promising principals. Preparation programs for principals must model, nurture, and promote the acquisition of skills with different kinds of data, connecting data to classroom practices, and the group process skills necessary to engage all stakeholders in improving the quality of American schools. In summary, the changing role of instructional leader

prescribed by the new era of accountability and standards-based education requires that

principals are selected, prepared, and retained in new ways.

Problem Statement

"Schools must be willing to assess their current reality with total candor and honesty, and then

describe the specific measurable results they expect to see as a result of achieving their vision.

Using data is the most effective strategy for translating the good intention described in a vision

statement into meaningful targets" (DuFour and Eaker, 2000, p. 71).

This research study was designed to contribute information gained from authentic

practice by surveying principals to find out about their current use of data, their attitudes and

competencies concerning data, and their perceptions of themselves as instructional leaders. This

information was combined with information about their schools and school districts to identify

variables that influence principals' use of data. The findings of this study contribute to a research

base for principal preparation programs offered by universities and colleges and for staff

development efforts provided for practicing principals. Using current research to plan these

professional development opportunities will ensure that principals are adequately prepared to

demonstrate the professional standards that vividly described a new type of leadership for

America's schools.

DuFour (1998) articulated a vision of school leaders who are instrumental in restructuring

school environments and creating professional learning communities in today's schools. He

described principals who create professional learning communities by leading through a shared

vision and values. These principals involve faculty and community members in the school's

decision-making processes and empower individuals to act on their ideas. Such principals

provide staff with essential information, training, and parameters to empower them to make decisions. DuFour stated that these principals provide relevant background information and research findings to help teachers arrive at informed decisions. He saw principals of professional learning communities as being results-oriented. Therefore, these principals working as instructional leaders supply data, information, and feedback to teachers to identify and to articulate clear and measurable goals, to identify indicators that offer evidence of progress, and to develop systems of monitoring these indicators on a continuous basis. DuFour's description of principals working as instructional leaders included their hunger for facts and their constant search for meaningful data that they critically analyze. Data are held in high regard by these principals as data are viewed as sources of information to identify and solve problems. DuFour goes further by stating, "Schools are likely to become professional learning communities and committed to continuous improvement only if their principals use accumulated evidence to inform practice, celebrate success, and identify areas that need ongoing attention" (p. 195).

Information needed to prepare school leaders who will make this vision a reality has several components. Much more needs to be learned about principals' current use of data and their attitudes toward the use of data in improving instructional program. More information about how well principals are prepared to use data is also important. Incentives and the organizational characteristics which support and reward principals who use data should be identified. Information is needed about the resources available to principals including the availability of technology to support data retrieval and analysis, the types of data reporting that are accessible to principals, and the current professional development opportunities available to give principals opportunities to learn new skills with interpreting and connecting data to classroom practice. In

addition, the expectations of others such as supervisors, teachers and parents, and the influence on these expectations on principals' use of data needs to be understood.

There are at least six reasons for seeking additional information of this nature. These six reasons concern the quality and scope of existing research, the implementation of national standards for school leaders, a pending shortage of principals, existing obstacles to the use of data in schools, the identification of specific resources or conditions which promote the use of data, and the presence of operating myths that may affect effective use of data. Each is described in subsequent sections.

Existing Research

There is little current research concerning the use of data by principals and previous research endeavors do not provide a national perspective. Although these studies offer valuable information about principals' use of data, current research should update findings, include elementary principals, and broaden the scope. Hall, Rutherford, and Griffin's (1982) research concluded that principals operate differently with facilitating change and identified three distinct leadership styles. Principals characterized by these three types of leadership styles used data differently to change instruction. Another study conducted by McCloskey, Altschuld, and Lawton (1985) investigated the relationship between a set of predictor variables and principals' utilization of formal and informal sources of information. This study included only high school principals working in Ohio. The data from this study supported the existence of a number of variables that distinguish principals who were frequent users of data from less frequent users. A third study conducted by Glasman (1984) sought to determine if principals' self-perceptions as instructional leaders were critical to the type of instructional leadership that resulted in improving student achievement. Elementary principals working in California were identified by

their supervisors as belonging to one of two groups, "Most Effective with Improving Student Achievement" or "Least Effective with Improving Student Achievement". Glasman's study showed that both groups supported the practice of sharing data with teachers. They believed that this practice made a difference in student achievement, but did not feel that data should be used to evaluate teachers. In spite of these shared beliefs, the schools of the principals were reporting different results on standardized tests and the principals were demonstrating different strengths with improving student achievement.

Therefore, the first need for more information about principals' use of data is evident. Although these three studies give a basis for research on this topic, all were done prior to standards-based education and the new emphasis on accounting for student achievement. Future inquiries that update the literature, include elementary principals, and offer a national perspective will promote a broader understanding of principals using data as instructional leaders.

National Standards for School Leaders

The potential for the Interstate School Leaders Licensure Consortium (ISLLC) standards to provide nationally accepted standards for the recruitment, evaluation, and retention of principals into the field is the second reason for conducting research focusing on the use of data by instructional leaders. In the past, the selection of principals and the establishment of standards for performance were left to the individual states. The creation of new and explicit national standards offers the potential for more uniform and rigorous standards for principals. The implementation of national standards for school leaders requires a national perspective of current conditions so that the state districts will have guidance with defining standards for school leaders.

Principal Shortage

At the same time new standards for principals are being considered, a pending shortage of school principals presents another dimension to this problem and a third reason for more research. The Institute for Educational Leadership (2000) published a report summarizing the work of a task force that presented information about why principal leadership matters, how specific problems threaten principal leadership, and ways leaders can address the principalship crisis. This group reported that 2.2 million new teachers will be needed in the next 10 years due to increasing student enrollment and teacher retirement. Additional teachers and students mean additional administrative positions. In a 1998 survey of 403 school district superintendents cited in this report, half of the responding superintendents reported a shortage of qualified candidates for principal vacancies. As reported by this study, the main reason for the number of principal vacancies was the retirement of practicing principals. This report cited other reasons contributing to a pending shortage of school principals. The reasons included low pay, demanding parents, intense workload, district leadership, uneven quality of teachers, and poor professional image for principals. The report also stated these reasons were simultaneously operating to promote the retirement of an aging work force while creating an undesirable profession that is not attracting new candidates. To fill these vacancies, new principals must be recruited in large numbers. They must be prepared to function in ways that will enable them to get the job done for students. Therefore, preparation programs for principals need to be founded upon a broad research base and designed to produce instructional leaders.

Obstacles to Using Data

A fourth reason for seeking new information is that many sources reveal the existence of obstacles that principals currently encounter when using data. Information about these obstacles

would greatly assist school districts and principals with addressing them. Schmoker (1999) described the fear that educators have about data. Data show weaknesses that warrant change. This produces anxiety for principals and teachers as change is a threat to established routines and practices. Additionally, Bernhardt (1998) described teachers as not prepared to work with data due to their more intuition-based training. This training enables teachers to make daily decisions concerning discipline, instructional activities, and parental communication but Bernhardt pointed out that this training does not help with systematic and ongoing changes that are needed in some schools to improve achievement. He proposed the use of concrete evidence as a tool for change. Lortie (1975) found through case study research that teachers have little confidence in regard to their capacity to raise student performance. He noted that this lack of confidence impacted teachers' approach to daily instruction and to any school improvement effort. Lortie concluded that purposeful data collection similar to how athletic coaches use data would move teachers to become more goal oriented, to be more confident they make a difference with student performance, and to be better able to define clear goals that guide teaching and learning practices that result in student achievement gains.

Others described lack of training for principals as well as for teachers as an obstacle to the use of data. Killion and Bellamy (2000) noted that principals are not trained to gather, organize, maintain, and understand data. They also noted that principals do not have effective role models of other professionals using data. Creighton (2001) supported Killion and Bellany's observations by stating educators fear statistical analysis because of the pre-service training they receive. He said that courses in statistical methods were usually taught with formal proofs of mathematical theorems and the derivation of statistical formulas as the primary focus. He proposed that principal preparation programs must begin to present statistics as relevant to the

daily work of principals by focusing on program and student evaluation, data-based decision making, problem analysis, and report preparation. Additionally, Creighton proposed technology must be integrated into statistical work for educators.

Not only did the literature indicate that the training for the use of data and research was not available for principals, the value and process of gathering evidence of student performance and connecting it to classroom practice were also missing from principal preparation programs. Richardson (1994) stated that principals do not have the background necessary for them to consider data relevant to classroom practices. She supported a connection between adult learning and instruction. She stated that principals and teachers closely examining student data, extracting information from standardized test reports and relating it to curriculum, and collecting daily student data to evaluate progress are effective practices for school improvement. Therefore, a national perspective of how principals viewed their preparation and personal competencies would validate or negate the existence of these conditions and inform staff developers about how to plan effective training programs for either aspiring or practicing principals.

Current Incentives and Expectations

A fifth reason to obtain additional information is to identify and describe the existence of current incentives and school district expectations for principals to use data. This would greatly assist school districts with creating conditions or resources that promote an administrative practice which yields results with student learning. Bernhardt (1998) noted that data analysis is often assigned to central office staff and is not an expectation for principals. Holcomb (1999) described the methods of maintaining and reporting data to schools as either a "feast or famine" situation. Schools either receive too little or too much data. Killion and Bellany (2000) stated that data often come to schools in complicated and unfriendly reports and that school districts

only share data with principals who are already overwhelmed. Each of these educational writers offered suggestions such as the integration of technology, allocation of funds and staff resources, limited and purposefully selected data sources, simple and succinct data reports, and an expanded audience of data receivers that include teachers, reading specialists, and staff developers. Additional information about current conditions in schools that support the use of data would be valuable for school districts to create their own solutions to ensure the use of data.

Myths Concerning the Use of Data

Finally, educational writers described myths about using data and a lack of relevance of data to the work of educators. If principals and teachers are to learn to use data effectively, these myths must be dispelled. Schmoker (1999) described the perception that using data is time consuming and requires the use of complicated statistical formulas. In reality, he persuaded educators that using data require only the ability to count, calculate, and graph. Likewise, Creighton (2001) stated that the majority of statistical analyses useful to principals can be completed with a basic understanding of mathematics and is more conceptual than requiring complex calculations. He felt the statistics that most principals need is descriptive statistics to help summarize and organize data. He felt principals should be familiar with such terms as percentile ranks, means, medians, mode, range, and standard deviation. He justified this by saying that principals are interested in collecting data about classes, grade levels, or the whole school and not as interested in generalizing their school data to other schools or to estimate parameters or to test an hypothesis. Principals must be skillful with statistics that help to describe the sample from which the data were gathered and to explain the possible relationships between variables. W. Edwards Deming, an advocate of Total Quality Management (TQM) and business consultant, also supported that the statistical tools essential to quality production were neither

difficult nor complicated to master. He described methods of organizing and visually displaying data as the most powerful tools for management and usually required only middle school mathematics. Deming stated, "In most cases, employees can collect the data and do much of the interpretation and they are happy to do so because it gives them responsibility" (Walton, 1986, p. 97).

Summary

The role of principal is complex and multi-faceted. The era of accountability and national standards for school leaders have resulted in a new vision of school leaders. This visionary school leader works collaboratively with teachers to ensure sustained and substantive school improvement that result in increased student achievement. Data are described in the national standards and in educational literature as an effective resource for school leaders. Vacancies created by the large number of retiring principals and by increased student enrollment will be filled with principals that are just beginning their career. Both aspiring and veteran principals need training to work effectively in this new role defined for principals. To plan this training, current information with a national scope is needed about existing conditions in schools that promote or hinder the use of data, principals' attitudes about data, ways principals currently use data, and how well principals are prepared. This information would contribute to a foundation for understanding and explaining current principals' practices with data. From this understanding, plans for professional development for the recruitment, retention, and rejuvenation of principals could be modified or enhanced to make this vision of school leadership a reality.

CHAPTER II

LITERATURE REVIEW

Developing an understanding about how or why principals influence instruction and student achievement and the tools they use to accomplish this requires both a consideration of principals as individuals and principals in relation to the environment or culture in which they work. Additionally, an understanding of leadership in general helps with understanding what motivates schools leaders and how their behavior can be modified to get different results. This section provides an overview of the literature concerning leadership theories, research on educational leadership, the relationship between leadership and achievement, and previous studies concerning the use of data by principals. Included is research that describes the value of data as a resource which enhances the changing role of principals and research that identifies specific variables influencing principal leadership. A theoretical model that visually represents the information gained from the literature review concludes this chapter.

Leadership Theories

Theories concerning leadership behavior help with understanding how leaders are influenced and how their behavior can be changed. This understanding can greatly contribute to creating programs and conditions that promote the change in the leadership role of principals described earlier.

Field Theory

De Rivera (1976) explained the theory of Kurt Lewin, a social scientist who taught at the University of Berlin in the 1920s. Lewin asserted that a person's behavior is best understood in terms of the structure and dynamics of the life space occupied by that person. The life space

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includes the person, the environment, and the person's needs. He advised that individual behavior should be studied in context because to separate the parts from the whole or group to which the individual belongs creates a distorted picture. His concept, Field Theory, is grounded in the assumption that an individual's behavior is a function of the person and the environment interacting. Lewin theorized that individuals and groups operate in "fields' in which all aspects are interdependent with the others and that behavior results from the forces in the field. The forces can be classified as either driving or restraining.

Field Theory offered an implication that modifying driving and restraining forces can lead to change (Gershwin, 1994). For example, increasing the rate of pay for the number of units produced may produce a change in productivity for assembly line workers. On the other hand, an identification and removal or reduction of restraining forces can also create change. For example, reducing the complexity and effort needed to gather equipment for science experimentation by providing science equipment for each science unit might result in more science instruction in the elementary classroom.

Gershwin (1994) interpreted Lewin's work for educators. She recommended that Field Theory could help educators plan training programs that result in the acquisition of new skills by understanding the driving and restraining forces operating for the people who are being trained. She pointed out that motivation alone does not produce change. Rather, staff development must include a component of group decision-making, which is then translated into group action. Gershwin also applied Field Theory and advised staff developers of the difficulty with attempting to change isolated individual conduct apart from the group that fosters the conduct. She recommended staff development be delivered to small, cohesive groups of employees who work together rather than training individuals.

Adaptive-Reactive Theory

Like Lewin, other social scientists utilized the impact of environmental variables to explain principal behavior. Osborn and Hunt (1975) proposed that variables such as the school's community, size of the school, level of the school, teachers' attitudes, mobility of the school population, and the policies and decision-making process of the school district impact principals' leadership. This theory is called the Adaptive-Reactive Theory and assumed that the principal adapts and reacts to the structure and size of the school community, student/teacher characteristics, and other external environmental variables.

Role Theory

Role theorists such as Kahn, Wolfe, Quinn, and Snoek (1964) suggested that leadership behavior of all individuals, including principals, is influenced by expectations of others. Kahn linked the individual to the organization within which the principal as an individual works by locating a set of ongoing relationships and behaviors comprised by the organization (district or school). Associated with each organization is a set of activities that defines the potential behaviors the principal may display while performing the role. Each member of the organization is directly associated with others and together they constitute a role set. The role set usually includes the principal's supervisor, the principal's subordinates, and others with whom the principal works. Kahn explained that all members of a principal's role set depend on the individual and his/her work performance in some way. They may be rewarded by the work of the principal or they may require his/her work in order to perform their own job. People develop beliefs, attitudes, and expectations about what the principal should or should not do as a part of his/her role. These expectations may include preferences for specific acts or personal characteristics or style. They also provide standards by which the principal's performance is

evaluated. Communication concerning these expectations is sent to the principal and is intended

to bring conformity with the expectations of others. "These communications may or may not be

legitimate. They may be prescriptive or proscriptive, punitive or benevolent, subtle and indirect,

or direct and blatant" (p. 15). In a school, the principal gets information about how others expect

him/her to perform through job descriptions, requests, and verbal messages. Other variables

contributing to how the principal performs are the mission of the district and school, and the

expectations of parents.

Expectancy Theory

Theorists such as Nebecker and Mitchell (1974) offered the Expectancy Theory. A

principal's behavior can be predicted from his/her awareness and perceptions of the

consequences for his/her behavior. Their work suggested that leader behavior is a dependent

variable controlled by the personal expectations of the leader. To understand why a leader

behaves the way he/she does, the perceived expectation that a behavior is related to the

attainment of outcomes and the evaluation of these outcomes must be defined. For example, if a

principal anticipates that he/she will receive praise for not using all of the funds allocated in

his/her school budget, the principal is likely to turn back unencumbered funds at the close of the

fiscal year rather than allocate funds for classroom teachers. Principals are likely to pursue

courses of action that yield desired outcomes. This theory is limited because it does not explain

how principals formulate expectancies or why certain outcomes are valued more than others.

In summary, all four leadership theories, Field, Adaptive-Reactive, Role, Expectancy,

presented the potential for both personal and environmental variables to influence principal

performance. Lewin's Field Theory described a leader's behavior as a function of both the

person and the environment. Role Theory suggested that leaders are influenced by how others

wish the leader to fulfill the role. Expectancy Theory identified key players such as the superintendent, teachers, and parents who contribute to establishing clear expectations for a principal to meet. These same people influence the principal's perceptions of consequences and rewards for his/her behavior. Finally, Adaptive-Reactive Theory stated that characteristics of the nation, district, and school culture could influence how principals work. An increased understanding of what influences principals' leadership behavior will contribute to defining their changing role.

Educational Leadership, Relationship between Leadership and Achievement, and Use of Data by Principals

There has been much research focused on the connection between educational leadership and student achievement. Additionally, each professional field has a cadre of leaders and writers who influence attitudes and practice. These leaders and writers offer persuasive arguments about principal leadership in general and about the use of data specifically. These hypotheses are not always backed by systematic research or yield similar conclusions. However, they set the stage for research projects such as the one presented in this dissertation. These literature sources provide a philosophical basis and dialogue that can influence principals' behavior. These sources are also helpful with identifying both the driving and restraining forces operating to influence the use of data as a tool for instructional leadership. The sources selected for this section explore the essence and definition of educational leadership, the relationship of leadership to student achievement, the use of data by principals, and the purpose of data with the newly defined leadership role for principals.

Educational Leadership

The research on educational leadership in general has produced neither a universally accepted profile of leaders nor a set of effective practices available for well-intended principals. Yukl (1994) stated that the definition for educational leadership is arbitrary and very subjective. He described some definitions for educational leadership as being more useful than others but believed that there was no clear, agreed-upon, and correct definition. Fullan (1995) supported Yukl's opinions by reporting that research on leadership has failed to provide the specificity and practical application that offer clear direction to school leaders. He wrote, "Principals who view the literature in the hope of enhancing their effectiveness would be hard pressed to answer the questions, 'So what do I do now? Where do I start?'" (p. 705).

Elmore (2000) pondered instructional leadership by asking the question "What is instructional leadership?" He gave a wide range of behaviors that educational leaders demonstrate when they function as instructional leaders. Specifically, Elmore stated that instructional leaders continuously use information about student performance to guide school improvement efforts, focus on helping teachers improve their classroom instruction, and make academic performance a priority for the school. To do this, instructional leaders spend a great deal of time in the classrooms observing instruction, inspecting student test data and other indicators of student learning, and allocating a substantial amount of time to staff development. Teachers are given opportunities to share information and to work together to plan curriculum. At the same time, instructional leaders buffer teachers from extraneous and distracting non-instructional issues and hold teachers accountable for the effectiveness with student learning.

Relationship between Leadership and Achievement

Some research exists that focused specifically on the relationship between principal behavior and student learning. However, Leitner (1994) gave several cautions for considering this research. Leitner stated that the concept of instructional leadership or behavior is measured inconsistently which results in different findings. Descriptive studies which claim that principals' time is fragmented and limits their influence on student achievement looks at discrete behaviors. In comparison, the effective school research defined the principal's role with more general behaviors. Leitner also pointed out that much of the effective school research was done in low socioeconomic and urban schools which narrows measures of student achievement and limits the value of generalizing to other populations.

In spite of these cautions, Leitner (1994) concluded that the influence of principals on student learning is indirect. He conducted a study in an urban school system with approximately 53,000 students. The subjects were elementary (K-8) principals and teachers in 27 schools. Only principals who were in at least their third year and teachers who were in at least their second year at their current school were included. In this study, Leitner examined the relationship between the school environment and principal's behavior and how the school environment influenced the relationship between principal behavior and student achievement.

Student achievement gains were the dependent variable and the relationship between instructional management and student achievement was explored. Current achievement was regressed on prior achievement for two years of data, 1985-86 and 1986-87, and socioeconomic status (SES) for the two years of data collected. Spring test scores (current achievement) were regressed on fall test scores (prior achievement). The independent variable was the principal's instructional management behavior and was measured by the Instruction Management Rating

Scales. A questionnaire was administered to 412 teachers. Items on the questionnaire asked to what extent their principal performed specific instructional management behaviors that were grouped into three general dimensions: defining the school's mission, managing the instructional program, and promoting a positive school climate.

The data collected from the questionnaire supported the conclusion that while the relationship between instructional management and student achievement is positive, it is not statistically significant, and appears to be influenced by environmental and organizational characteristics. Leitner (1994) pointed out that principals' influence on achievement is realized by their impact on teachers' behavior and attitudes. Principals influence what teachers emphasize in the classroom by clearly defining the school mission and by supporting and managing the school's instructional program. In general, Leitner defined a principal's influence on student learning as creating conditions within the school that promote learning. He concluded the key to understanding the relationship between how principals operate in their roles and their influence on student learning is to understand why principals' behavior influences others, namely teachers.

A study conducted by Andrews and Soder (1985) found that school principals are critical in ensuring academic achievement, especially for African American and low-income students. This study was a two-year collaborative study conducted by the Seattle Public Schools and the University of Washington, College of Education. The researchers administered a questionnaire to all district instructional staff to measure 18 strategic interactions between principals and teachers in terms of principals working as resource providers, instructional resources, communicators, and visible presences. Principals who operated as resource providers mobilized personnel and resources within the school, district, and community to achieve the school goals. When serving as instructional resources, principals set expectations for continual improvement of the

instructional program and were actively engaged in staff development. Principals who served as communicators modeled commitment to school goals and adhered to clear performance standards for instruction and teacher behavior. Finally, principals who served as visible presences visited classrooms, attended grade-level meetings, and held both formal and spontaneous discussions with students and staff about a variety of topics.

After these data were collected, the schools were divided into three groups: the highest scoring principals were identified as strong leaders, the middle scoring principals as average leaders, and the lowest scoring principals as weak leaders. Data from the California Achievement Test were used to measure student performance gain. Year-end 1982 data served as baseline and individual student gains were compared to test data from the 1984 test administration. Students included in the study had to be enrolled in the same school during 1983 and 1984 to be a part of the study. Data were aggregated within each school for all students by ethnicity and free-lunch status. Data from 33 elementary schools were collected. The independent variable was strength of leadership and the dependent variables were total reading and total mathematics average gain. An F-Test was used to determine statistical significance. The authors found that the normal equivalent gain (NEC) scores of students in strong-leader schools were greater in both total reading and total mathematics than the gains of students in schools rated as having average or weak leaders. When the data were considered for differences between groups of students, the strongest gains in achievement scores were in schools with principals considered by teachers to be strong leaders. The gains for African American and free-lunch students were consistent across groups, from highest for strong leader schools to lowest for weaker leader schools. The greatest differences existed for free-lunch students in reading and for both African American and free-lunch students in mathematics.

Leitner's (1994) work concluded that the influence of principals on student learning is indirect through their influence on teachers. Andrews and Soder's (1985) work concluded that specific behaviors demonstrated by principals make a difference with student performance. Although these two studies presented different findings concerning the manner in which principals affect student achievement, both offer implications for principal preparation, selection, staff development, and evaluation of principals. Because specific leadership behavior can influence teachers, these behaviors and skills of persuasion should become a primary focus to guide activities which attract, select, recruit, and rejuvenate school principals.

Use of Data by Principals

Three studies mentioned in Chapter I focused on understanding principals' use of data. Hall, Rutherford, and Griffin (1982) used case study research to examine across-building differences and within school influences of principals with innovations of instruction by individual teachers. This study concluded that principals operated differently with facilitating change and identified three types of styles. These three styles were initiators, managers, and responders. Principals characterized by these three types of facilitation styles used data differently to change instruction. Initiators took the lead and made things happen. They were influenced by their internal perceptions that the job of a principal is to make changes that ensure students meet rigorous standards. Initiators used data to refine goals and to monitor student progress toward goals. On the other hand, principals who operate as managers implement district policies and programs sent from the central office. The behavior of these principals as they implement programs was influenced by their knowledge of the innovations. Managers worked to get the work done, kept teachers informed, and showed sensitivity to teachers. Data were collected to monitor the progress of the program as the central office needed it. Principals

characterized as responders were influenced by their internal perceptions that the job of the

principal is to keep the school running smoothly and to leave teachers alone to do their jobs.

They showed great confidence in teachers to perform as professionals that carry out their role for

providing instruction with little guidance. These principals were likely to collect data concerning

school climate and staff morale and to use data to involve teachers in decision-making.

A second study conducted by McCloskey, Altschuld, and Lawton (1985) investigated the

relationship between a set of predictor variables and principals' utilization of formal or informal

sources of information. This research was conducted in Ohio by surveying 181 high school

principals with school populations of 1000 or more students. The data from this study supported

the existence of a number of variables that distinguish principals who were users of formal and

informal data from those who were not. Participants who indicated they relied extensively on

data were more likely to perceive themselves as instructional leaders, felt they had autonomy in

the academic hierarchy, considered themselves to be open-minded, and reported greater training

in social science research methods than those principals who relied less on data. Principals who

were high users of data also perceived themselves as goal-oriented and initiators of programs to

achieve results. They attributed their training in research as contributing to their value of data as

well as their understanding of what to do with data. In other words, principals' self-perceptions

of themselves as instructional leaders and their training were the strongest predictors of their

reliance on data.

A third study conducted by Glasman (1984) focused on principals' use of data to improve

student achievement but provided a slightly different picture. She sought to determine if the

personal variable of principal self-perception as instructional leader was critical to instructional

leadership that resulted in improving student achievement. Glasman's study included California

elementary principals and their use of data to narrow education goals to specific objectives, to

evaluate teachers, and to tackle problems associated with specific classes whose aggregated test

results were low. The study was designed to gain information from principals about (a) practices

of sharing performance data with teachers; (b) beliefs that sharing can positively affect student

achievement; (c) beliefs that data should be used to evaluate teachers; and (d) beliefs that

principals' use of data is effective in influencing teachers' classroom practice. Principals in 88

California districts participated and were divided into two groups. These groups were "most

effective with improving student achievement" and "least effective with improving student

achievement". The assignment of the principals to a group was done by district supervisors. Both

groups were administered questionnaires and 95% of the 183 participants in the "most effective"

group responded. Of the "least effective" group, 83% of the 117 participants responded.

The results of this study showed a high percentage of both groups shared data with

teachers. Also, most principals in both groups believed that sharing data had a positive effect on

student achievement. However, a smaller percentage of both groups indicated that performance

data should be used to evaluate teachers. A comparison of the groups on a question-by-question

basis using the Gamma Test and chi-square level of probability yielded no significant differences

between the groups. Glasman's study showed that both groups supported the use of data and felt

that this practice can make a difference in student achievement, yet the groups of schools were

yielding different results on standardized tests. Figure 2.1 summarizes the results of the study.

Table 2.1

Results of Glasman's Research

	Principals Share Data	Positive Effect on Student Achievement	Data Should Be Used to Evaluate Teachers
Most Effective Group	93 %	89 %	74 %
Least Effective Group	92 %	85 %	66 %

Data: A Tool for the Changing Role for Principals

There are also literature sources that promote the value of data for school improvement and offer specific strategies for instructional leaders to use to raise student achievement. Others describe the changing role of principals and incorporate the use of data in this new role. The sources cited in this section reflect the direction provided by educational leaders who influence practice as they publish in professional journals, present at professional conferences, and serve as consultants for principal preparation and staff development programs.

Schmoker (1999), Fullan (1999), and Bernahrdt (1998) described the value of data for principals working to improve student achievement. Schmoker (1999) believed that principals have an opportunity to improve student achievement when data are used. He proposed three concepts that constitute the foundation for positive improvement results: meaningful teamwork; clear measurable goals; and the regular collection and analysis of performance data. Specifically, Schmoker said, "Common goals that are regularly evaluated against common measures—data—sustained collective focus reveal the best opportunities to learn from each other and hence to get better results" (p.55).

Like Schmoker, Fullan (1999) predicted collaborative work toward common goals would result in increased student achievement. He proposed that creating a school culture which

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nurtures assessment literacy would reduce teacher isolation and foster an increase of

collaborative work among teachers. Fullan described a school culture with assessment literacy as

having the capacity to examine student data, making sense of them, possessing the ability to

make changes in teaching based on data analysis, and demonstrating the commitment to engage

in assessment discussions.

Bernhardt (1998) supported Schmoker's view that the use of data is a valuable tool for

principals and other instructional leaders since it enabled educators to focus their work and to

ensure student success. He proposed that the use of data empowered principals and teachers to

understand the needs of students and the root causes of recurring problems so they were able to

pursue the possible solutions to problems and evaluate the effectiveness of their work to others.

Bernhardt saw this purposeful approach to improving student achievement as an improvement

when compared to the process of adopting one innovation after another

Total Quality Management (TQM) is a business theory which also contributed to an

understanding of leadership, the mission of schools, and the use of data to inform decision-

making so that better results are produced. The philosophical groundwork for the incorporation

of TQM was laid by W. Edwards Deming, an American statistician and employee of the U.S.

Census Bureau. Deming earned a doctorate at Yale University and worked closely with Walter

Shewhart, a physicist who developed techniques that helped to reduce waste and to promote

improvements in industry and manufacturing. Shewhart influenced the development of Deming's

theory of management by emphasizing the collection of statistics on both the process and results

of work and proposed that data from these two sources could be used to make adjustments to the

process to ensure great efficiency. This use of statistics incorporated with cooperative work place

procedures was appealing to the Japanese when Deming went to Japan to help them with their

first postwar census and became a consultant for improving the quality of Japanese industry.

Central to Deming's theory of management was that the quality of all we do and all we

produce can improve when:(a) the strengths of each individual are recognized, (b) there is a

focus on the customer, (c) management decisions are based on facts, (d) an organization seeks

continuous improvement, (e) there is total involvement of all workers toward accomplishing the

goals of the organization, and (f) there is systemic support by top management (Trumbull, 1994,

p. 26).

Deming's TQM is applicable to school administration and to school improvement.

Schmoker and Wilson (1993) described the operation of TQM in a school setting. Specifically,

TQM applied to educational settings called for the creation of a democratic, collegial atmosphere

in which educators work for a common purpose and use data to determine constructive actions

which consistently improve instruction for the students or customers. TQM called for educators

to focus on establishing the context in which students can best achieve their potential through the

continuous improvement of teachers' and students' working together. A TQM school would

include regular analysis and evaluation of student performance data as a basis for continually

improving on best practices to serve the school's customers. Data would become the source to

provide information about which methods and processes need to be changed.

Schmoker and Wilson continued by stating that the traditional model of principals and

teachers is changed with the application of TQM. Principals are no longer instructional leaders

who serve as experts who must "mass inspect" to achieve quality and results. Rather, principals

in TQM schools work with teachers to share data about results of student learning. Teachers

view their program through the eyes of the students and see themselves as suppliers of effective

learning tools and environments. Consequently, teachers and principals collaboratively talk about the effectiveness of their program and their efforts. An atmosphere of trust and a united sense of purpose enable principals and teachers to learn from each other, to use data to report student progress, to identify problems or fluctuations with performance, and to apply interventions for weaknesses or deficits. The use of data fosters precise and ongoing reflection of classroom practice, connects methods to school district goals, and relates the work of teachers and principals to measurable student progress.

DuFour and Eaker (1998) summarized the effective school research done in the 1970s and 1980s and made a comparison with their vision and a new model for school leaders. They saw that principals described by effective school research were quite different from principals described by the national standards or by DuFour's quote earlier in this paper. Principals described by the effective school leadership were strong, forceful, assertive individuals quick to take initiative. These principals created schools that actualized their personal vision of how a school should run. The effective school research placed principals at the center of school reform. By contrast, principals described for the twenty-first century demonstrate their strengths in other areas. Principals characterized by the national standards have definite ideals about teaching and learning. They set high expectations for students, establish clear and measurable goals for achievement, and monitor the progress of students. Schools leadership is a priority that connects and encompasses everything principals do. Principals for the twenty-first century work to create professional learning communities in which teachers collaborate and learn from each other how to become more effective with improving student achievement. This new leadership role for principals relies less on command and control and more upon learning and leading, less dictating and more orchestrating. Lieberman (1995) described the principals of professional learning

communities by stating, "The 1990s view of leadership calls for principals to act as partners with teachers, involved in a collaborative quest to examine practices and to improve schools. Principals are not expected to control teachers but to support them and to create opportunities for them to grow and develop" (p. 9).

Holcomb (1999) provided hands-on experiences and specific techniques for instructional leaders to use data to influence the thinking of others and to motivate them to make changes in school cultures. Her practical references supported Leitner's (1994) conclusions that principals have limited control and power to ensure student success without the collaboration and cooperation of others, namely teachers, parents, and students. Holcomb's publications and professional workshops present passion and data in the same forum and offer practical strategies for principals on how to use data to engage others in the planning and evaluation of vision statements and initiating change for students. Holcomb expressed her views about school leaders using data by stating, "By analyzing what is and is not working to improve student learning, educators can focus scarce resources on goals and strategies that make the most impact on achievement" (p. xiii).

Research Concerning Personal and Environmental Variables

Several studies focused on the impact of personal and environmental variables on principal leadership. Variables identified in these studies included the principal's gender, age, work experience, years of education, socio-economics of the school, characteristics of the school and district, job description, professional development experiences, and demands of the job.

The work of Hallinger, Bickman, and Davis (1996) expanded Leitner's (1994) research concerning the influence a principal has on student achievement. Hallinger, Bickman, and Davis explored relationships among antecedents that influence principal leadership and the

consequences of principals' instructional leadership. Similar to Leitner's findings, they found two environmental variables, socio-economics of the school community and parental involvement, and one personal variable, gender, impacted principal behavior. The study used the Far West Laboratory for Educational Research and Development (FWL) leadership model and sought to examine empirically the efficacy of the model. The conceptual model included in Figure 2.2 illustrated principal leadership in relation to features of school environment, organization, and student outcomes. The model implied that instructional leadership provided by the principal was contingent upon features of the school organization and its environment and that a principal's leadership influenced student outcomes indirectly through management of the staff, climate building, and organizational development. Instructional climate encompassed all the facets of the school that shape the attitude and behaviors of staff and students toward instruction and learning. Organizational development included such features as grouping practices and instruction.
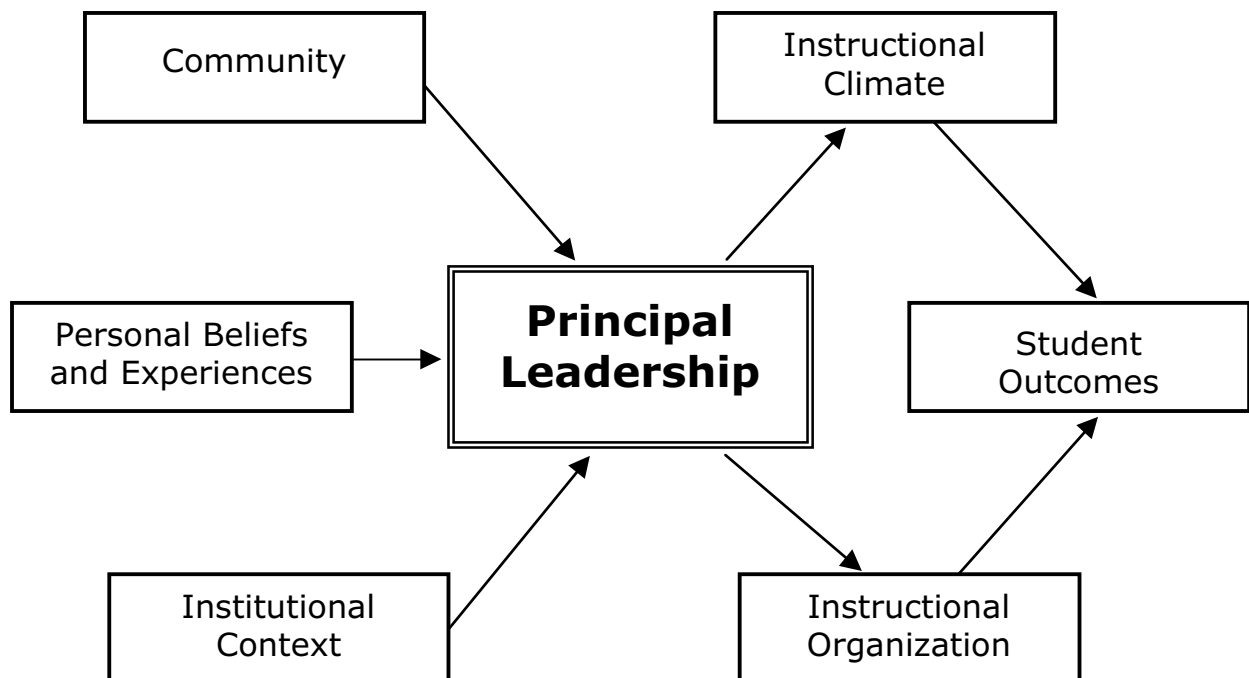
Figure 2.2. Far West Laboratory for Educational Research and Development (FWL) Leadership

Model

The FWL research focused on three research questions. They were:

   (1) What antecedents appear to influence principal leadership behavior?

   (2) What impact do principals have on the school organization and its outcomes?

   (3) To what extent is the FWL model supported empirically by data?

      Schools in Tennessee were recruited for voluntary participation that resulted in the

inclusion of 87 schools. Data concerning the context, demographics, and measures of socio-

economics were gathered with a School Information Form completed by the principals.

Additional questionnaires were completed by both principals and teachers to determine

(a) organizational variables hypothesized to be related to student performance, (b) teachers'

attitudes toward their own ability to improve student achievement, (c) availability of incentives

for school personnel, (d) various contextual variable potentially related to faculty effectiveness,

and (e) an effectiveness of factors associated with effective school research and the degree to which these might change after participating in the study.

The findings did not support the simple causal structure displayed by the FWL model in Figure 2. The chi-square test produced a value of 64.4, df = 19 (p < than .001) and normed Bentler-Bonett fit index was 0.563. This lack of fit suggested that the simple causal structure hypothesized in the FWL model is not able to account for the observed correlation (Hallinger, Bickman, Davis, 1990).

This study gave much information about the influence of both personal and environmental variables on principal leadership. First, the researchers found a statistically significant effect of student socio-economic status on principal behavior. The data indicated that principals in high socio-economic (SES) schools exercised more active leadership than principals serving in lower SES schools. Second, the data collected for the study indicated female principals exercised more active leadership in the areas of curriculum and instruction than do their male colleagues (Hallinger, Bickman, Davis, 1990). The Hallinger, Bickman, and Davis study also showed that the environmental variable of parent involvement impacted principal behavior positively. Specifically, principals perceived by their teachers as active instructional leaders worked in school in which parents were very involved in the education of their children. However, the data were not used to infer the degree of interaction between principal leadership and parent involvement. Further research to determine the quantity and quality of these interactions was recommended.

The research done by Leitner (1994) described earlier concluded not only that the influence of the principal on achievement was indirect but he also concluded that SES impacts principal leadership with instruction. Leitner concluded that principals in low SES schools had

less time to spend on instructional management behaviors and therefore, may have less control over teacher behavior. On the other hand, Leitner concluded that principals of high SES schools can devote more time to gaining teacher consensus on school goals. Therefore, these principals can be less directive in influencing teacher behavior and instruction than principals in low SES schools. Leitner proposed that principals of low SES schools who spend more time defining the school's missions by framing the school's goals and communicating them to staff will reduce the number and ambiguity of school goals and are more like to increase student achievement than principals of low SES schools who do not do this.

Researchers like Adkison (1981), Hallinger (1990), and Glasman (1984) supported the generalization concerning the leadership of female principals. Hallinger offered several reasons for this gender specific difference. These explanations included the years of experience as a teacher and the effectiveness of female administrators communicating with a predominately female teaching force. Further research was suggested to consider these differences.

Wellisch's (1978) work focused on principals' attitudes and self- perceptions. He selected 28 elementary schools and categorized them into two groups. One group included schools that had raised student standardized test scores while the other group included schools which had not shown improvement with test scores. Questionnaires were administered, interviews were conducted, and observations of schools and classrooms were made to collect data. Wellisch examined (a) how strongly principals felt about instruction, (b) whether they communicated their ideals about instruction, and (c) the extent to which they assumed responsibility for instruction. Wellisch's work supported Andrews and Sober's (1985) work with the conclusion that schools where teachers attributed more responsibility to principals for instructional leadership were more

successful with raising test scores. The principals in these schools were more likely to review and discuss teaching practices and student performance indicators with teachers.

Leithwood and Montgomery (1982) also found that principal leadership was influenced by several environmental variables such as job description and the nature of the job of principal. They reviewed three categories of research studies that focused on leadership, management, administrative concepts, school change, and school effectiveness. To analyze the research literature, interviews of principals were conducted so the results of the study could be organized around the type of thinking, language, and behavior that were readily understood by principals. The study concluded that often principals placed great value on "leaving teachers alone to teach" and to "running a smooth ship" rather than making changes in instruction. Therefore, the primary goal of the principals was frequently keeping the activities of a school manageable in the midst of the pressures for change rather than instructional leadership. This means cultivating harmonious relationships by "not rocking the boat". The study also pointed out the daily demands of the job requires administrative functions that distant a principal from curriculum or instructional decisions giving principals few chances to change instructional practice. These researchers concluded that the job is inherently ambiguous and complex, as there was often a lack of clear expectations or conflicting responsibilities. There seemed to be no viable rationale for tasks assigned to principals and no defensible criteria for assessing the performance of principals. In addition, the job requires principals to work on a daily basis with a large number of people, assist them with solving problems that vary greatly in importance, and to keep everything running smoothly.

Graham's (1997) work summarized survey data collected from 500 elementary, middle, and high school principals and supported the work of Leithwood and Montgomery (1982).

Graham found that the typical respondent spent 40-60 hours per week on activities considered to be administrative. More than two-thirds (68%) of the principals considered themselves to be general managers while slightly less than one-fourth (22%) considered themselves to be instructional leaders. The data from the survey showed a relatively small amount of time (less than five hours per week) was devoted to curriculum development, teacher observations and evaluations, and parent conferences. The environmental variables encompassed within the job description and the reality of the job presented significant restraining forces to principals providing leadership with instruction.

Theoretical Model

The literature review provided background for the development of a theoretical model with predictor variables that influence the use of data by principals, the criterion variable. The research and literature and research offered by Creighton (2001), Glasman (1984), Killion and Bellany (2000), Lortie (1975), McCloskey, Altschuld, & Lawton (1985), Richardson (1994), and Wellisch (1978) presented information about principals' attitudes, self-perceptions, and skills with using data. Other aspects of personal variables such as age, years of experience both as a teacher and an administrator, and gender may contribute to principals' use of data and were researched by Adkison (1981), Glasman (1984), and Hallinger (1990). Finally, the literature sources provided by Graham (1997), Hallinger, Bickman, and Davis (1996), Leithwood and Montgomery (1982), and Leitner (1994) presented information about ways environmental variables shaped principals' performance. These variables included educational leaders and supervisors who influenced practice, school district leadership and characteristics, and school/community characteristics. These variables were evident through the messages articulated in professional journals, mission statements, operating procedures and processes, job

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descriptions, and the expectations of superiors, teachers, and parents. District characteristics

included the expectations of schools districts for principals to use data as well as the support and

staff development provided to equip principals to use data. School characteristics included

teachers' competencies with data, teachers' attitudes about data, parental expectations, and the

demographics of the student body. This model presented in Figure 2.3 was used to develop

research questions to guide this inquiry.

Personal Variables

- Demographic Data
- Attitudes
- Self-perceptions
- Competencies

Principals' Use of Data

Environmental Variables

- Professional Growth
- District Characteristics
- School Characteristics
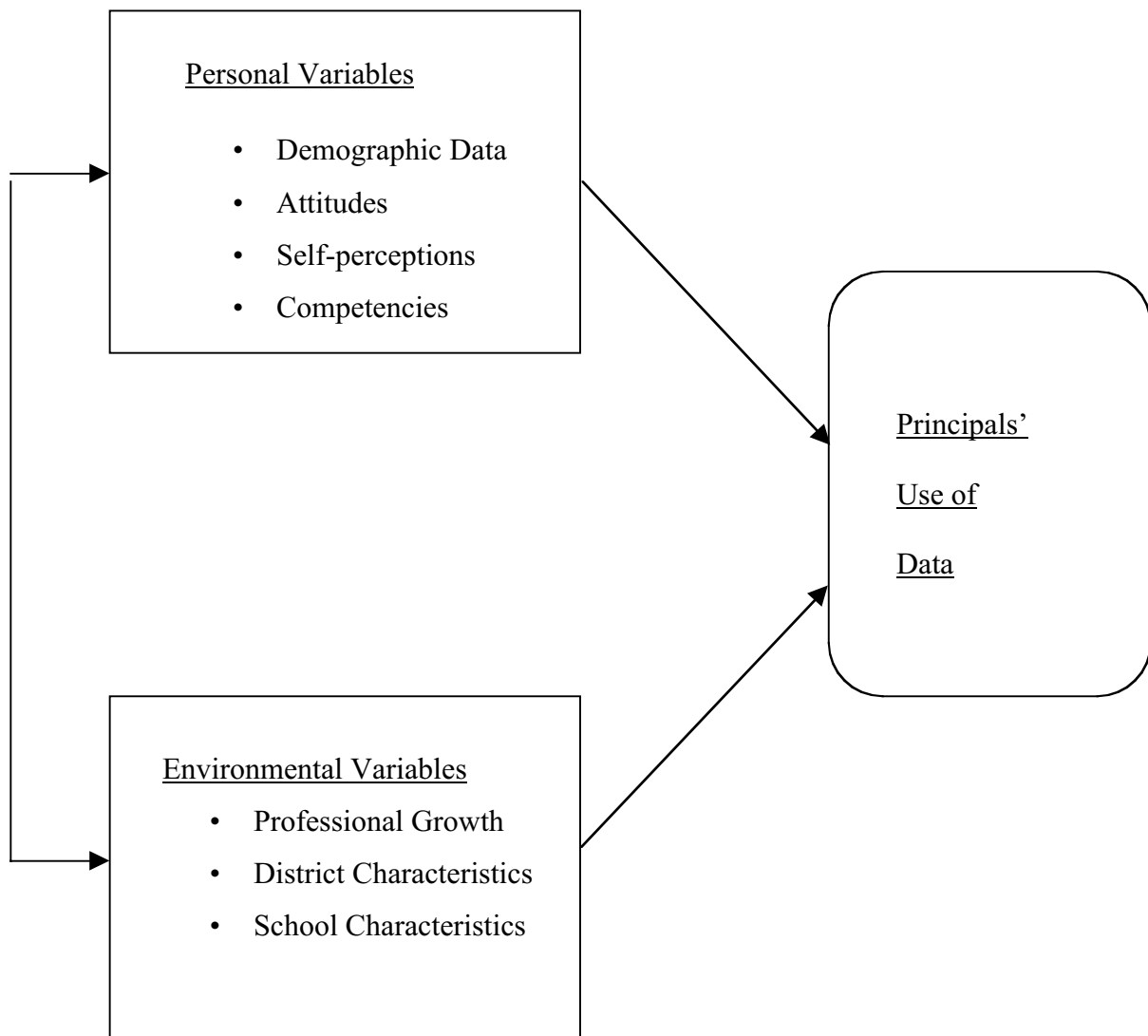
Figure 2.3. Variables influence use of data as a tool of instructional leadership.

Summary

The study of principals' use of data as they work in the role of instructional leadership is presented in the context that the role of the principal is rapidly changing from a position of management to a position of leadership. In this role of leadership, principals promote student learning and are accountable for student achievement. Instructional leaders require different skills than managers as instructional leaders work to create professional learning communities in which everyone is focused on maximizing student performance. Principals working as instructional leaders must understand the change process, the teaching/learning cycle, assessments, course content, and effective instructional strategies. They also need to possess skills that enable them to collect and analyze data that communicate progress, provide direction, and align human effort. The shift from manager to instructional leader requires different techniques of recruitment and preparation of aspiring principals as well as ongoing staff development for practicing principals. An understanding of principals' current attitudes, competencies, and practices using data would contribute to understanding and identifying possible predictors for the use of data. Although there exists some research in this area, new inquiries need to contribute current findings and reflect a national perspective. Information gained from current research about principals' use of data will inform principal preparation programs offered by colleges and universities and enable these institutions of higher learning to modify standards and experiences for the adequate preparation for work in the schools. Also, evaluation procedures and job descriptions could be modified to hold principals accountable and responsible for using those skills, tools, and processes which get results with student learning.

CHAPTER III

METHOD

The objectives of this research were to gather basic information on the use of data by principals as they work to provide instructional leadership, to understand the variables that contribute to principals' use of data, and to determine the relationship of these variables and the use of data. The research questions that guided this inquiry are:

1. How do elementary principals in the United States vary in their use of data as a tool of instructional leadership?

2. What is the relationship between the use of data and two categories of variables: Personal and Environmental?

This chapter contains information about the method of research used to gather data to answer these two questions. Specifically, there is information about the research method, the population, and the selection of the sample. The steps followed in implementing this study were planning the project, developing the questionnaire, organizing the layout and production of the questionnaire, administering the survey, scoring the returned questionnaires, and data entry. One step, the development of the questionnaire, is especially critical to survey research and is described in a separate section. The steps for developing the questionnaire included defining the content of the questionnaire, writing items, validating the content, and defining the variables assessed with the questionnaire. A description of the statistical analysis procedures used to understand the data and to draw conclusions is also presented. This chapter concludes with a statement about the subjectivity of the researcher and a summary of the chapter.

Research Method

The method selected for gathering data to answer the dissertation questions was survey research. Rea & Parker (1997) stated that sample survey process is an excellent method of research for determining, with a known level of accuracy, information about large populations. These authors also stated that surveys are constructed to collect three types of information: descriptive, behavioral, and preferential.

This study sought both descriptive and behavioral information from the respondents. Descriptive information needed for this study included years of experience as principal, years of experience as a teacher prior to becoming a principal, the size of the school, the grade configuration of the school, and the socio-economics of the school population. This information contributed to an understanding of the larger population of principals represented by the sample and allowed for comparisons of groups of respondents. In addition, measurements of the respondents' attitudes toward data and their behavior concerning the use of data were sought. The descriptive information and measurements of principals' attitudes and behavior were used to describe the principals' current use of data as well as to quantify the relationships between the respondents' use of data and such variables as professional development, characteristics of the school, characteristics of the district, personal competencies, and attitudes.

Population and Sample Selection

The population was the membership of the National Association of Elementary School Principals (NAESP). The mission of this professional organization is to provide leadership in advocacy and support for elementary and middle school principals and other educational leaders in their commitment to all children. This professional organization, founded in 1921, has grown to a current membership of 28,500 (http://www.NAESP.org).

The sample for this research project was provided by NAESP and involved a random selection drawn from the membership of NAESP. The membership list from which the sample was selected was current as of September 14, 2001. Babbie (1990) described the intent of random sampling from a membership list as creating a sample that is representative of the larger population. He also stated that random sampling avoids bias in the selection of participants and permits an estimate of sampling error.

External Validity

External validity concerns the extent to which the data gained from survey research can be generalized from the specific sample that was studied to a larger group of individuals. The validity of this research is dependent on whether the sample provided by NAESP was representative of the membership of the organization, whether NAESP was representative of the population of principals in the United States, and whether the group of principals who responded by completing and returning the questionnaire was representative of the sample provided by NAESP.

The first consideration of external validity was whether the sample was representative of the NAESP membership. Following Babbie's recommendations, the intent of the random sampling for this study was to create a representative sample.

The second consideration of external validity was whether the NAESP was representative of the larger population of U. S. principals. As stated before, the sample was randomly drawn from the membership list of NAESP. There were 28,500 members at the time of the selection of the sample. The number of elementary and middle school principals working in the United States as reported by http://www.schooldata.com is 81,242 elementary principals and 25,325 middle school principals. This means that the size of the general population of U.S. principals eligible

for NAESP membership as reported by this source is 106,567. Consequently, the sample drawn

from the membership of NAESP may not be representative of the entire population of U. S.

principals. Specifically, there are 106,567 principals in the U.S. who are eligible for membership

to NAESP but there are only 28,500 members. This means that 78,067 principals had no

opportunity for selection in this study as they were not included on the membership list.

Additionally, the NAESP membership included not only principals but other administrative

professionals who serve elementary and middle school students. Therefore, generalization of the

findings from this study is limited to principals who are members of NAESP.

The third consideration of external validity was to consider whether the group of

individuals who responded by completing and returning the survey was representative of the

sample selected by NAESP. There were two things done to consider this aspect of validity. The

sample of principals was organized by states and geographical regions of the United States so

that the return rate from all parts of the U.S. could be monitored. The results of this analysis are

presented in Chapter IV. Additionally, tests of significance were included in the analysis to

compare the groups of respondents returning the questionnaire after the first mailing and the

group of respondents formed by returning the questionnaire after the second mailing. Differences

indicated by the statistics produced by this analysis assisted with determining if the results for

each item could be generalized from the sample to the larger population of U. S. principals

having a membership in NAESP.

Determining Sample Size

Based on a 95% confident interval for a maximum of $\pm$ 5% error rate, a sample size of

380 is needed for a population of 28,500. This number was determined by consulting a table

provided by Krejcie and Morgan (1970). However, it was anticipated that all principals who

received a questionnaire would not return their responses. Therefore, an additional 22% was added to the sample size expressed in this Table. In this way, the size of the sample was 460 principals.

Procedures

The procedures followed for the implementation of this study included planning the project, developing the questionnaire, organizing the layout of the questionnaire, administering the survey, scoring the returned questionnaires, and collecting the data. Developing the questionnaire was important for implementing survey research and involved several activities. Therefore, the development of the questionnaire is described in general in this section but is fully explained in its own section as well. Although this listing of procedures may give the impression that survey research is a step-by-step and linear process, the researcher found survey research to be an integrated process and included much overlapping of the steps. As a result, the researcher found it necessary to focus on the whole process of implementation at the same time that individual steps were planned and completed.

Planning the Research

Planning this survey research project included a presentation of the plan for this proposal to the Dissertation Committee and gaining approval from the Institutional Review Board (IRT) of Virginia Tech. The support of NAESP was also sought. NAESP agreed to do the random sampling of their membership, provide mailing labels, and permit the use of the organization's name on the questionnaire. Additionally, the planning included much reading about survey research. References by Babbie (1990), Dillman (2000), Fink and Koseoff (1985), and Rhea and Parker (1997) were consulted and their recommendations guided this research.

Developing the Questionnaire

Once the plan was approved and the involvement of NAESP was defined, the process of developing a questionnaire began. As recommended by Dillman (2000), the development of the instrument for this survey research project was approached as a social exchange between the members of the sample and the researcher. Attention was given to a variety of details including appearance, organization, directions and explanations, and items included.

The intent of this procedure was to develop a questionnaire that gathered the data needed to answer the research questions, was easily understood, resulted in a high response rate, and yielded data that were reliable and valid. The steps taken to develop the questionnaire included defining the content of the questionnaire, writing questionnaire items, validating the content by pre-testing or piloting the items, and defining the variables assessed by the questionnaire. The description of these steps is described more completely in the section on Instrument Development. As a part of instrument development, two pilot studies were conducted to determine clarity and content validity for each of 114 items. Based on pilot results, 50 items were retained for final use in the questionnaire.

Organizing the Layout and Production of the Questionnaire

There were parts of the questionnaire other than the items that were planned. These parts included the opening letter, title, directions, and visual details to enhance the appearance and consistent use of the instrument by the respondents.

An opening letter was written and reviewed by representatives of NAESP and Virginia Tech and four graduate students. The wording of the letter was planned to serve several purposes. The study was introduced by describing the purpose and the usefulness of the research. Principals were acknowledged for having the ability to provide valuable contributions to

educational research and for having limited time. NAESP and Virginia Tech were given credit

for supporting the study. Information about how to return the questionnaire and a deadline for

return were provided. Recipients who did not wish to participate were asked to return the

questionnaire. Recipients were assured their responses would be kept confidential and the

numeric identification code was explained. Information about the approval process of the

research was given. An estimate of time principals needed to complete the survey was provided.

A stamped post card was included to allow principals to request the results of the study. The

letter ended with a thank you and was signed by the dissertation chairperson and doctoral

student. This letter was printed on the front panel of the survey instrument.

The title, directions, definition of data, and items were printed on the inside of the

questionnaire. Directions were simple and printed at the beginning. The questionnaire was titled

"Principals' Use of Data: A National Perspective". The definition of data was provided. Shading

was used to provide visual organization to the items and to help all participants navigate through

the items in a similar pattern. Items were organized into eight parts labeled with Roman

numerals. Reverse printing was used to distinguish the eight parts of the questionnaire and to

assist with movement of the respondents in the same path through the items. There was a line for

the questionnaire number that was used to assist with data entry. After the last item, a "Thank

you" message was printed again. The Virginia Tech logo was printed on both the front and back

panels of the instrument.

To create a positive first impression, the questionnaire was prepared by a professional

printer. The final product was a 50 item questionnaire produced as a tri-fold product printed with

black ink on ecru paper. The survey included 41 Likert items with the possible responses of

Strongly Disagree, Disagree, Agree, and Strongly Agree. Items 42-48 sought demographic

information and were formatted with blanks for respondents to complete. The demographic items were placed at the end of the questionnaire. Items 49 and 50 were open-ended items for respondents to create their own responses.

The printer also prepared an introductory post card, a mailing envelope, a smaller return envelope for the respondent to return the questionnaire, and a post card for respondents to request the results of the research project. All of these items were printed with a Virginia Tech address and were stamped. The questionnaire is in Appendix A.

Description

A sample of 460 principals was randomly selected by NAESP after contact was made with Mr. Fred Brown, Associate Director of NAESP. The group of 460 principals worked in schools in 49 states and all were registered members. Labels with names and addresses were provided by NAESP at no charge.

Administration of Survey

The introductory post card was mailed to members of the sample one week prior to the mailing of the survey. An advanced announcement of a pending survey is considered an effective technique to increase the response rate. However, an introductory card was especially important for this project. The nation was gravely concerned about opening personal and business mail due to the anthrax crisis. The post card introduced the study by giving a brief description of the project, stating a date for arrival, stressing the importance of principals' time, and providing an estimate of how much time it would take to complete the questionnaire.

The post card was mailed January 5, 2002 to all members of the sample group and the questionnaire was mailed on January 10. A second mailing was prepared to go to those members of the sample who did not respond by January 31. The second mailing was prepared and initiated

February 1. The third contact was the mailing of thank you post cards in March. The last

questionnaires were received March 7, 2002.

Scoring

Prior to the administration of the survey, each item was coded and an Excel database was

prepared for data entry. The database had fields for participant identification, date of mailing and

date of receipt of the questionnaire, request for results, and responses. Decisions concerning

coding of the items were made depending on the type of response that was possible. As the

questionnaire included 41 multi-choice items formatted with a four point Likert scale, non-

numeric data was coded into numeric data. For example, the Likert scale included the options of

"Strongly Disagree, Disagree, Agree, and Strongly Agree". Strongly Disagree were entered as

"1"; Disagree was entered as "2"; Agree was entered as "3"; and Strongly Agree was entered as

"4". This coding was used for items 1-41. There were no items that required reverse coding.

Items 42-48 sought demographic information and were open-ended with blanks for the

responses to fill. For item 42, male was coded "1" while female was coded "2". Items 43, 45, and

48 asked for number of years and these were entered as numbers. Items 44 asked for the grade

configuration of the school. There were a variety of configurations which were grouped into four

categories and were entered into the database with 1, 2, 3, or 4. The codings for data entry for

these categories were:

1. Category - Schools with preschool or kindergarten through grade 2 students (ex. K-2;

   PreK-1, etc.),

2. Category - Schools with preschool or kindergarten through elementary grade 6. (ex. K-

   5; PreK-6),

3. Category - Schools with no preschool and kindergarten grades but included the mid-elementary grades of two through 6. (Example: Grades 2, 3, 4 or Grades 3, 4, 5), and

4. Category - Schools with upper elementary and mid-level grades (ex. K-8: Grades 1-7; Grades 6-8.

The grade configurations of the schools were grouped into these categories because of the grade levels at which standardized tests are often given. Formal group testing is usually not done in Kindergarten-Grade 2 and often starts in Grade 3. At the same time, schools with a range of grades from primary into middle school grades are unique and provide a wide variety of students, assessments, and data sources. Principals of schools with a K-elementary grade configuration work with primary grades that may have no formal testing data. At the same time, these principals may also work with grades that are tested and generate this type of information. These categories were used to reflect the differences in data sources created by the variety of grades enrolled in the school.

Items 46 and 47 asked for percentages and they were entered as numbers. Items 49 and 50 were open-ended. These responses were word processed using the exact wording of the respondent and the number of the survey. This information was then color coded with each color representing specific domains and organized by domains.

Data Collection

The data were entered daily as the questionnaires arrived. The Excel database had fields for the number of the survey, the date the survey arrived, whether the respondent requested the results of the study, and the responses for items 1-48. The Excel database was imported into the Number Cruncher Statistical Package (1998) for analysis. Responses for items # 49 and # 50

which were open-ended were recoded verbatim and organized by domains. All questionnaires were kept.

Instrument Development

The intent of this procedure was to create a questionnaire that gathered the information needed to answer the research questions, was understood by the principals who received it, was appealing and interesting enough for principals to take time to complete and return, and yielded data that was useful for answering the research questions. Steps in developing the questionnaire included defining the content of the survey, writing items that cover the content, validating the content with pre-testing of items, and defining the variables that were considered important to this research.

Defining the Content of the Survey

Fink & Koseoff (1985) stated that an important step in conducting survey research is defining the content of the survey. For this project, the researcher conducted a literature review and incorporated personal experiences as a principal to determine the relevant issues pertaining to leadership and the use of data.

The literature review yielded much information. To organize this information, a matrix was developed. This matrix is in Appendix B and was used to organize the literature sources into the variables that the researcher felt should be considered for the research. These variables became the domains that were eventually used in the survey to write and to group items.

Once the literature review was organized according to variables, descriptions of the domains were written as found in Appendix C. The domain descriptions were used for writing items. The seven domains were: (a) personal characteristics of principal; (b) principals' attitudes toward data, the use of data by others, and leadership; (c) principals' self-perception as an

instructional leader; (d) principals' self-reported competencies with reading, storing, interpreting, analyzing, and displaying data; (e) professional development experiences; (f) school district characteristics; and (g) school characteristics. Throughout the development phase, the number of items for each domain was monitored to ensure that the content of each domain was adequately covered. The content of the survey item was validated by two pilots that are described after item construction is described.

Item Construction

Items were written by domain and prepared for pre-testing prior to the final production of the questionnaire. The wording and format of each item were important considerations. To develop appropriate items, guidelines for item construction presented by Fink & Koseff (1985), Babbie (1990), and Dillman (2000) were considered. The items were written to be meaningful for principals, used standardized language rather than specialized words or abbreviations, and avoided the use of emotional laden vocabulary. Care was taken to be sure one ideal or issue was introduced in each item and language that was specific and understandable for principals was included. Only items that contributed to answering the research questions were selected and items that sought personal information were avoided. As items were constructed, they were shared informally with doctoral students to gain input on language usage, match to the appropriate domain, and the clarity of each item.

The format of the questions was also considered. Fink & Koseff (1985) recommended that multiple-choice or closed-ended responses are commonly used for questionnaires, provide reliable results as they provide respondents the same options for response, and are easy to score. Therefore, the majority of the items were written using a four point Likert scale. Other formats were also written and included in the pre-testing. The item format was dependent on the type of

information sought. Several items were written for respondents to fill in the blanks and several items were written as open-ended so respondents could develop their own response. Continuous data concerning age, years of experience, size of schools, and percentages reporting characteristics of the student body were sought rather than categorical data so these items were formatted with blanks.

More items than were needed for the final questionnaire were created for each domain so decisions about the quality of each item were possible. Twelve items were created for each domain and 18 items were written to seek demographic information. The number of items written was reduced as a result of the content validation process.

Content Validation with Pre-testing or Pilots

Content validity is the degree to which the items of an instrument measure the content or attribute that they are designed to measure (Borg & Gall, 1979). Cronback (1971) described content validation as the process by which a researcher collects evidence to support the types of inferences being made from the collected data. The purpose of content validation is to assess whether the items adequately represent a construct of interest and requires a series of specific steps. The steps of this process were defining the domain of interest, selecting a panel of qualified experts in the content domain, providing a structured framework for matching the items to the domain, and collecting and summarizing data from the matching process (Crocker & Algina, 1986). Fink and Kosoeff (1985) stated that content validity is usually established by asking experts whether the items are representative samples of the attitudes and traits the researcher wishes to survey.

The first step of content validation for this project was described earlier in this paper and involved the identification of the domains of interest from information gained from the literature

review as provided with Appendix B. This step also included the description of the seven

domains as presented in Appendix C. These two organizational devices guided the construction

of twelve items for each domain.

The second step of selecting a panel of qualified experts was accomplished with three

pilots. The members of the first two pilot groups were enrolled in a Principal Preparation

Program, worked in schools, and aspired to become principals. The third pilot was conducted

with ten practicing principals. These experts had daily knowledge of schools and school

administration, and their input was instrumental in the development of a questionnaire that

provided data to measure the intended content of this study.

The third step described by Crocker and Algina (1986) included a structured framework

for matching the items to the domain, and collecting and summarizing data from the matching

process. There were three pilots conducted to solicit input about the items and procedures for

administering the survey. The purpose of the first two pilots was to assess the clarity of each item

and the match of each item to the domains (association), the appearance, format, content, and

appeal of the survey in general. In the third pilot, ten practicing principals were provided final

productions of the questionnaires as well as other materials prepared for the mailings, and were

asked to complete the questionnaire. The third pilot was used to determine the amount of time

needed for respondents to complete the questionnaire. This group was also asked to identify and

to discuss any problems they anticipated with the administration of this survey.

Pilot #1. There were 114 items piloted. Items 1-89 were formatted with a four point

Likert scale response format. However, the members of the pilot group did not provide a rating

for each item using the Likert scale. They provided rating on clarity and identified the domain

they felt each item best represented. Items 90-102 were demographic items and respondents also

provided a rating of clarity. Items 103 and 104 asked the respondent to group items into

categories. There were two open-ended items, items 105 and 106, which offered respondents an

opportunity to identify driving or restraining forces for the use of data. Items 107-114 asked the

respondents to evaluate the future survey by asking for feedback about the questionnaire content,

appearance, directions, length, and appeal of the questionnaire. Materials for the first pilot are in

Appendix D.

The first pilot was administered to a class of 23 Master level students enrolled in a

Principal Preparation Program at Virginia Tech. Each pilot was numbered and 17 were returned.

Members of the pilot group were provided with descriptions of the domains on colored paper and

the items. No time frame for responding to the items was given.

Data for each item were collected, summarized, and analyzed. The standard for clarity

was defined as 82% of the respondents indicating an item was clear. The standard for association

was defined as 82% of the respondents matching the item to the domain. Data collected from the

first pilot are in Appendix E. The matrix provided in Appendix E gives the percentage of

respondents who correctly matched the item to the intended domain and the percentage of

respondents who considered each item to be clear. A decision to eliminate, bank, or re-write each

item was made and indicated on the matrix. When an item was banked, it meant the data

supported that the item was clear and matched the assigned domain. The item was then placed in

storage for use in the final questionnaire. Items that were re-written were assigned a new number

and included in the second pilot.

The data gained from the first pilot supported the inclusion of 26 of 106 multiple choice

items into the questionnaire item bank. Data for these 26 items met the standards for both clarity

and association as described earlier. Three items on the first pilot were eliminated because they

emphasized the use of research findings rather than the use of data. Items that received less than

56% of the correct association with the domains were considered to be weak and were also

eliminated. Items that received between 56% and 81% were re-written and included in the

second pilot. To re-write the items, the clarity rating and any written feedback provided by the

pilot group on the item were considered and incorporated. As a result of the first pilot, 26 items

were banked, 24 items were eliminated, and 42 items were re-written.

Pilot # 2. The second pilot included the 42 items that were re-written after the first pilot

and 16 additional items to assess the criterion variable, principals' use of data. The 16 additional

items were added to ensure there were an adequate number of items for this domain. These items

were administered to a different group of Masters level students enrolled in a Principal

Preparation Program at Virginia Tech. This time, 24 pilot surveys were distributed and 21 were

returned, summarized, and analyzed to make decisions about the final items for the questionnaire

item bank. Again, members of this group gave ratings for clarity and association and were not

asked to respond to the questionnaire. Descriptions of the domains and the items were provided.

No time frame for completion was given. Items included with Pilot # 2 are in Appendix F.

In the second pilot, all items with 63% of the respondents correctly identifying the

domain and 75% of the respondents indicating the item was clear resulted in the item being

included in the item bank. The criteria were changed from the first pilot to avoid a third pilot and

to keep the research project on schedule. Data collected from Pilot # 2 are in Appendix G. The

re-wording of the items from Pilot # 1 is shown by Appendix H.

Feedback concerning the survey content and scope of the survey was positive as several

participants wrote that the topic was relevant and warranted research. Feedback gained from both

pilots indicated the need for sensitivity concerning the length of the survey and the need to group the items by domain.

Pilot # 3. This pilot group included ten practicing principals who were asked to complete the questionnaire and to review all of the materials prepared for the administration. Responses from this group were very positive. No problems were encountered with the participants completing the questionnaire in 20 minutes or less. The group recommended that the first mailing be prepared after the winter holidays in December and anticipated no problems with administration. Feedback from this group was given in a discussion format.

The fourth step of collecting and analyzing data was done for all three pilots. The first two involved using descriptive analysis to calculate the percentage of respondents who considered each item to be clear and to calculate the percentage of items correctly matched to the domain. In addition, the items that yielded a low percentage of accurate matching were reviewed to see if there were trends that might offer explanations. These data were used to make decisions about keeping, rejecting, or re-writing items. The third pilot administering the actual instrument to current practicing principals involved collecting information about time needed to answer the questions and problems that the members of the group anticipated. Data displays for the first two pilots are found in Appendixes E and G. In the third pilot, feedback was gained through group discussion and consensus building.

Definition of Variables

The criterion and predictor variables were identified from the review of the literature and personal experiences. The criterion or dependent variable, principals' use of data, included principals' use of any information or evidence that is useful for principals to plan and evaluate

instructional programs or to measure, describe, and monitor student performance and growth.

Items developed to measure principals' use of data were items 1-6 on the questionnaire.

The predictor or independent variables were grouped into Personal and Environmental variables. Although the predictor variables were not intended to be exhaustive, they represent what influences the criterion variable. The Personal variables included were gender, years of education, years of experience both as a teacher and an administrator, attitudes, self-perceptions, and competencies. A principal's attitude is how he/she feels about data, the use of data by others, data analysis, and the use of technology to support data analysis. A principal's self-perception is his/her feelings about himself/herself as he/she performs the role of instructional leader. A principal's competencies are demonstrated skills with reading, storing, interpreting, analyzing, displaying data and the use of technology to perform these tasks. These variables contributed to the uniqueness of each individual principal and also contributed to creating a variance within the population of principals. Items on the questionnaire that focused on personal variables included items 7-28 and items 42, 43, 45.

Environmental variables included the influence exerted by the educational leaders who guide professional practice, school district leadership and characteristics, and school/community characteristics. These variables were evident through the messages articulated in professional journals, mission statements, operating procedures and processes, job descriptions, and the expectations of superiors, teachers, and parents. District characteristics included the expectations of school districts for principals to use data as well as the support and staff development provided to equip principals to use data. School characteristics included teachers' competencies with data, teachers' attitudes about data, parental expectations and involvement, and the

demographics of the student body. Items on the questionnaire that measure these aspects are items 29-41 and items 44, 46, 47, 48.

In summary, the preparation of the questionnaire for this research project included defining the content that was considered relevant to this study, writing items that were clear and represented the content needed to answer the research questions, conducting pilots to validate the content and to gain input from educators on administration features, and collecting and analyzing pilot data to make decisions about which items to include in the questionnaire and about the survey administration. This process was developed to ensure a favorable return rate and to assure a low amount of error.

Method of Analysis

Number Cruncher Statistical Package (1998) was used for the analysis process. The analysis procedures identified were driven by the two research questions. These questions sought a description and a determination of the relationship between the predictor and criterion variable. Therefore, the analysis procedures included descriptive analysis, two tests of significance, chi-square and t test, Cronbach alpha test to determine internal reliability, factor analysis, and multiple regressions.

Descriptive analysis procedures determined who responded and the distribution of the responses. Gender, state, size of school, years of experience as a principal, number of years of experience as a teacher prior to becoming a principal, and school characteristics were used to describe the respondents. The number of responses and percentage of respondents that responded to each scale were calculated for each item. The median for each item were calculated. Also, an aggregate median and percentage for each scale for each domain were calculated.

It was also important to have a good return rate and to compare the number of questionnaires and the responses returned by the first mailing to the group of returned surveys and responses gained from the second mailing. A chi-square test and a t test analysis were used to determine if there were any differences between these two groups. This gave evidence that the sample was representative of the population, so that the findings could be generalized from this sample of principals to the population of NAESP principals. The type of data generated by the items determined which test of significance was used. Items with scaled responses were analyzed with the chi-square test while items that generated continuous data such as years of experience or number of students were analyzed with a t test.

A reliable survey collects consistent responses. A Cronbach alpha estimate of internal reliability was used to determine how all items of a domain related to all other items in the domain. When items are measuring similar things, they are internally consistent. A correlation coefficient of 0 to 1 is produced by this analysis and a coefficient of .8 or larger was sought for this study. If respondent performance is consistent across the subset of items, the researcher can have some confidence that this performance will generalize to other possible items in the content domain. The correlation between subsets of items provides information about the extent to which items are constructed according to the same specifications. The Cronbach alpha measure was determined for each domain and as well as for the total survey of 1-41 items. Items 42-50 were not included as these items were open-ended.

Factor analysis was done using SPSS Version 10.0 (2000) to determine if the number of variables could be reduced and if the data supported the organization of the variables into domains as presented on the questionnaire. The information gained from this analysis determined the organization of the variables for the multiple regression procedures and resulted in decisions

concerning items. These decisions were included with the results of the multiple regressions found in Chapter IV.

Multiple regressions were used to determine the existence and strength of the relationships between the predictor variables and the criterion variable, principals' use of data. The first research questions asked for a description of principals' use of data while the second research question asked for a determination of the relationships between these variables. Multiple regression yielded findings for these questions. Identifying strong predictors for the use of data was one of the purposes of this analysis.

The verbatim responses from the open-ended items 49 and 50 were assigned a color to represent the domain the researcher felt best matched the responses. The summary for each domain is provided in Appendices H and I. The open-ended responses were analyzed only after the quantitative data was analyzed. Verbatim quotes were used to support or to illustrate conclusions presented in the final chapter.

Declaring My Subjectivity

My thirty-four years of service in public education afforded me opportunities to serve as teacher, teacher specialist, principal, and mathematics supervisor. These assignments provided me with personal experiences with delivering instruction, working with teachers to improve instruction, supervising and planning the implementation and evaluation of instructional programs, and providing instructional leadership. As a principal for the past fifteen years, I also personally experienced the impact of educational reform that resulted in increased assessment of our students, national professional standards for teachers and principals, and the changing role of principals. Guskey (1999) described the current age of accountability as an era in which students

are expected to meet higher standards, teachers are held accountable for students results, and educational leaders are asked to show what they do really matters.

As a result of these experiences, I continue to believe that effective principal leadership is one key component for improving American schools. However, I also experienced and observed the impact of increased accountability for teachers, principals, and students. I have seen accountability interpreted by some as meaning that student performance is the major, and perhaps only, measure of teacher and principal effectiveness. Beneath this external pressure of accountability, I see the power of using data is informed decision-making that enables teachers and principals to identify both program and student needs, to connect curriculum assessments with classroom practices, and to plan individual and school wide interventions which reap improved student performance.

Realizing I carry this perspective, I have included formal subjectivity checks within this research process. The first is the examination of my study and conclusions by peer colleagues. These peers offered me insights into my personal bias that I brought to this research. Second, I incorporated close scrutiny of the quantitative process by my research committee member who ensured the deductive, objective process of quantitative research was maintained. Finally, the on-going input of my dissertation chair and committee members was the mechanism used for periodic and regular review of my work. This monitoring of my personal subjectivity enabled me to objectively analyze data and draw conclusions to contribute to the field of education.

Summary

The research questions for this study were aimed at describing principals' use of data as they work in their role as instructional leaders and at determining the relationship of several personal and environmental variables to that use of data. To gain the information to answer these research questions, a questionnaire was constructed to solicit self-reported information from a sample of principals working in the United States and who were members of NAESP. The intent was to use the data gathered by the questionnaire to make generalizations about the population of principals having membership with NAESP. To conduct a study that produced results that could be generalized from the sample of principals to the larger population of principals, several experts were consulted about the systematic and scientific process known as sample survey research. The process for developing a questionnaire for this survey research included identifying the type of information that was sought, constructing questionnaire items to gain this information, organizing the items into domains to support information gained from the literature review, pre-testing items to gain data on clarity and content for the purpose of establishing content validity, and gaining advice on questionnaire layout, production, and distribution. Decisions about each of these areas were based on the data gained from pre-testing items, input gained from pilot groups, or information gained from reading about survey research. The ultimate goal was to produce a questionnaire that produced a return rate that allowed for findings to be generalized from the sample to the larger population.

Item construction, instrument testing, and plans for the implementation involved both verbal and written input from colleagues from several different groups and the collection and analysis of data. These activities were conducted from October-December 2001 and the survey was mailed January 2002. The implementation phase of this survey research involved multiple

contacts to respondents in the form of an introductory post card, the questionnaire, follow-up

mailing, and thank you notes. The implementation period for this survey research spanned the

months of December 2001-March 2002.

Data were collected daily and NCSP was used to run several statistic procedures which

were determined by the nature of the research questions posed at the beginning of this chapter.

The statistical analysis procedures used for this study included descriptive, internal reliability,

t test, chi-square test of significance, factor analysis and multiple regressions. Questionnaire

responses were summarized into the results presented with Chapter IV and contribute to the

discussion points presented in Chapter V.

CHAPTER IV

RESULTS

This chapter includes the findings related to principals' use of data. There are five sections used to report the results. The first section gives information gained from a descriptive analysis and describes the respondents by providing the response rate of the sample used for this study, a non-respondent analysis, and a respondent profile. The second section focuses on the criterion variable, Principals' Use of Data. This section reports the results of the factor and descriptive analyses and answers the first research question "How do principals in the United States vary in their use of data as a tool of instructional leadership?" The third section focuses on the predictor variables included in this study. The results of the factor analysis, internal consistency, and the descriptive analysis for each domain representing the predictor variables are summarized. In the fourth section, a summary of two open-ended items organized by domains is presented. The fourth section describes the multiple regressions analyses and answers the second research question, "What is the relationship between the use of data and two categories of variables: Personal and Environmental?" The graphics for Figures 4.1 - Figure 4.9 were created by Generic Graphic Tool Software (1998).

Sample

Response Rate

The sample for this study was principals who were members of the National Association of Elementary School Principals (NAESP) and were randomly selected by this organization. There were 460 questionnaires mailed. The first mailing yielded 163 returned questionnaires while the second mailing yielded 63 respondents. The opening letter asked for principals to

return the questionnaire even if they did not participate by responding to the items. As a result,

11 of the 240 were returned but were blank. Two of these respondents had retired and one was

no longer serving as a principal. There were also three questionnaires returned because the

addresses were incorrect. Therefore, the final return rate was 226 of 446 or 51%.

The questionnaires were mailed to 49 states. The data were sorted by states and also by

geographical regions of the United States. A summary of the numbers of surveys mailed to each

state and region, the number returned for each state and region, and the return rate by state and

region is summarized with Table 4.1.

Non-Respondent Analysis

The potential for systematic error based upon non-responses was evaluated in two ways.

The purpose of this evaluation was to determine if the response group was adequate to represent

facts about the population of principals used in this study. The group of responses received in the

first mailing (January 10- January 31, 2002) was compared to the group of respondents received

from the second mailing (February1-March 7, 2002) to determine if there were any differences.

For the first mailing N = 163 and N = 63 for the second mailing. A chi-square test was used for

all items yielding a categorical response while a t test was used for the demographic items as

they yielded continuous data (items, 43, 45, 46, 47, and 48). The level of significance used for

both sets of analyses was .05. Chi-square results indicated only two statistically significant

variables while the results of the t test indicated no variables for which the null hypothesis should

be rejected. The findings of the chi-square and t tests are displayed in Appendix L. These results

indicated there is no likely bias between the group of initial respondents and those prompted by

the second mailing.

Table 4.1. Response Rate by State and Region.

Region	State	Number Mailed	Number Returned	Return Rate (%)
New England	New York	20	8	40
	Maine	3	3	100
	New Hampshire	4	1	25
	Vermont	5	4	80
	Massachusetts	8	4	50
	Connecticut	4	1	25
	Rhode Island	4	2	50
	Region Total:	**48**	**23**	**48**
Mid-Atlantic	Pennsylvania	34	21	62
	New Jersey	23	13	57
	Maryland	10	6	60
	West Virginia	6	1	17
	Delaware	0	0	0
	Virginia	22	13	59
	Region Total:	**95**	**54**	**57**
Southeastern	North Carolina	2	2	100
	South Carolina	2	2	100
	Georgia	4	3	75
	Florida	15	5	33
	Tennessee	10	6	60
	Alabama	8	7	88
	Mississippi	2	2	100
	Region Total:	**43**	**27**	**63**
Great Lakes	Wisconsin	15	9	60
	Michigan	26	14	54
	Illinois	21	7	33
	Indiana	15	7	47
	Ohio	12	4	33
	Kentucky	4	3	75
	Region Total:	**93**	**44**	**47**
South Central	Oklahoma	6	3	50
	Arkansas	3	2	67
	Texas	11	2	18
	Louisiana	8	5	63
	Region Total:	**28**	**12**	**43**
North Central	North Dakota	3	1	33
	South Dakota	5	2	40
	Minnesota	12	9	75
	Nebraska	10	7	70
	Missouri	12	5	42
	Kansas	4	3	75
	Iowa	11	6	55
	Region Total:	**57**	**33**	**58**
Southwest/Pacific	Utah	6	2	33
	Colorado	9	3	33
	New Mexico	1	0	0
	Arizona	8	3	38
	California	7	4	57
	Nevada	7	1	14
	Hawaii	2	0	0
	Region Total:	**40**	**13**	**33**
Northwest	Washington	36	15	42
	Oregon	12	5	42
	Idaho	1	1	100
	Montana	3	1	33
	Wyoming	2	1	50
	Alaska	1	0	0
	Region Total:	**55**	**23**	**42**

Percentages rounded to nearest whole percentage.

Respondent Profile

A respondent profile was created using the demographic data. Fifty-nine percent of the respondents were female while 41% were male. The range of service for principals was one year through 40 years of service with a median of 9 years and a mean of 10.5 years. Two first year principals and one principal with 40 years of experience responded to the survey. One principal had never served as a teacher while three respondents had served as teachers for 30 years prior to becoming a principal. The median for years serving as a teacher prior to becoming a principal was 11 years and the mean was 12.8 years. When the respondents were disaggregated by gender, the mean for years of service as a teacher was 10.8 for males and 14.2 for females. The standard deviation for males (4.9) was much smaller than the standard deviation for females (10.5). However, a t test did not indicate a statistically significant difference between males and females and years of teaching service.

The responses reporting percentage of students who were English speakers of other languages (ESOL) supported a national perspective for this research. Results indicated a low percentage of schools with students who speak languages other than English. Twenty-seven percent of the responding principals reported they served schools with no students who speak languages other than English. An additional 108 principals (50% of the total respondents) reported working in schools with less than 10% ESOL students. In fact, only 23% of the responding principals worked in schools with more than 10% ESOL population. These data present a very different picture of our nation's schools when compared to the schools serving the Washington, D. C. metropolitan area which is the area in which the researcher resides. Schools in the metropolitan area have students who speak many languages. Also, an enrollment of students speaking other languages has implications that affect the type of data that is available

for the principals serving these students. Often these students are exempt from standardized testing or are administered alternate assessments.

Respondents were asked about the percentage of students on Free and Reduced Meals (FARMS), an indicator of socio-economic status. Principals who responded to this questionnaire worked in schools in which the range of the students eligible for FARMS is 0-97 %. The median percentage was 30%. Again, this item gave merit for a national perspective of our schools. Half of the schools represented by the principals who responded to this questionnaire meet a federal standard that entitles children to receive reduced meals and extra services based on the income of their family. Although this information might not have an impact on the data principals have available, the number of students from low socio-economic environments indicated a need for targeted instructional programming. Data enable educators to specifically target focal points. Considering responses about ESOL and the social-economic status together, the results showed that our nation's schools serve low income families most of which are sending students who speak English to America's schools.

The principal of the smallest school had 57 students while the principal of the largest school had 1250 students in their total student population. The mean of the number of students in the schools represented by the respondents was 465.8 students.

The items yielding demographic data were separated into personal and environmental categories. A visual profile of the respondents was created using the data from the demographic items. Gender, years of experience as a principal, and years of teaching experience were grouped as personal variables while characteristics of the student body were grouped as environmental variables. The demographic data for personal variables are summarized in Figure 4.1 and the

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demographic data for environmental variables are displayed in Figures 4.2. The relationship of

the demographic data with the criterion variable is considered later in reporting the results.

Gender of respondents

N = 226

93(41%)

133(59%)

female

male
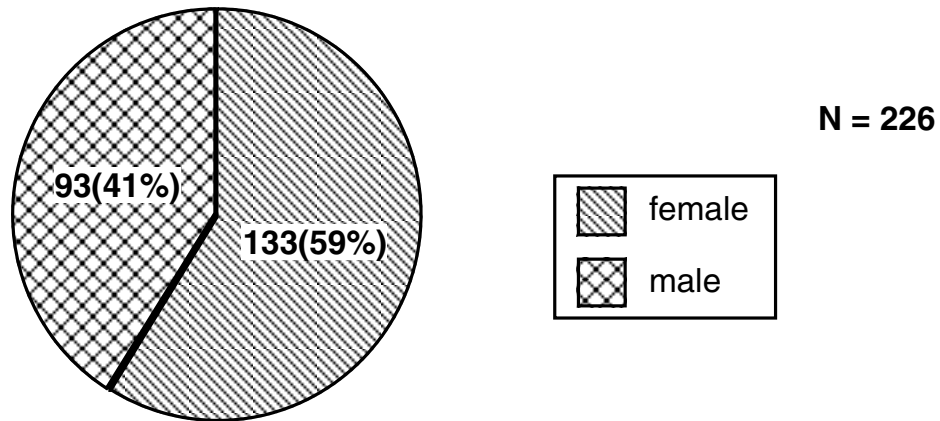
Number of years as a public school principal

N = 225
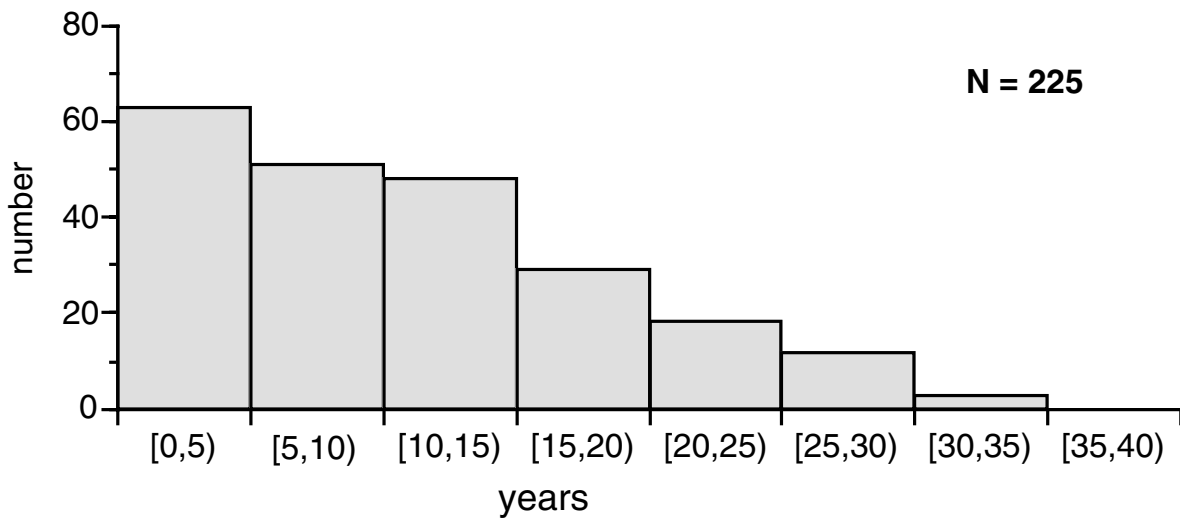
Years as teacher prior to becoming a principal

N = 226
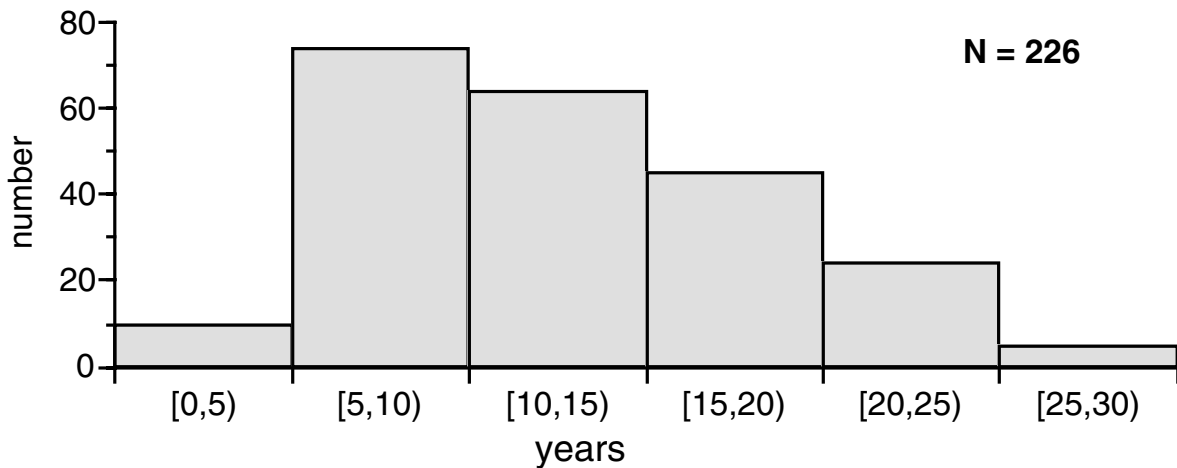
Figure 4.1 Summary of Demographic Data: Personal Variables.

Grade Levels in School
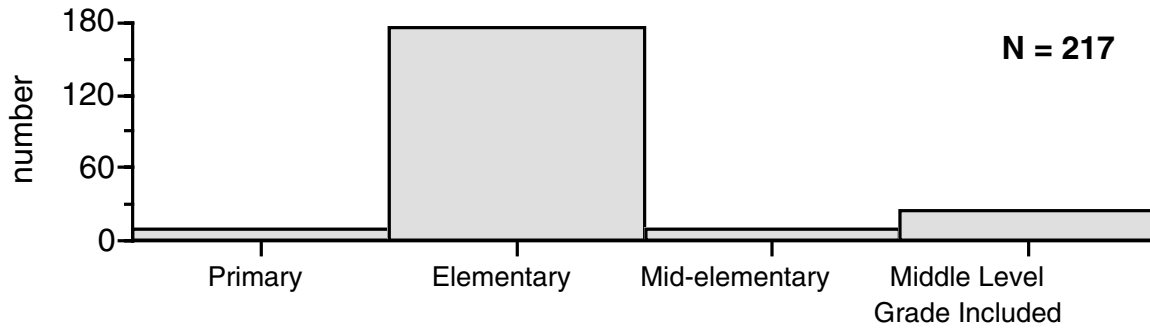
Distribution of Schools with Students Speaking Languages other than English
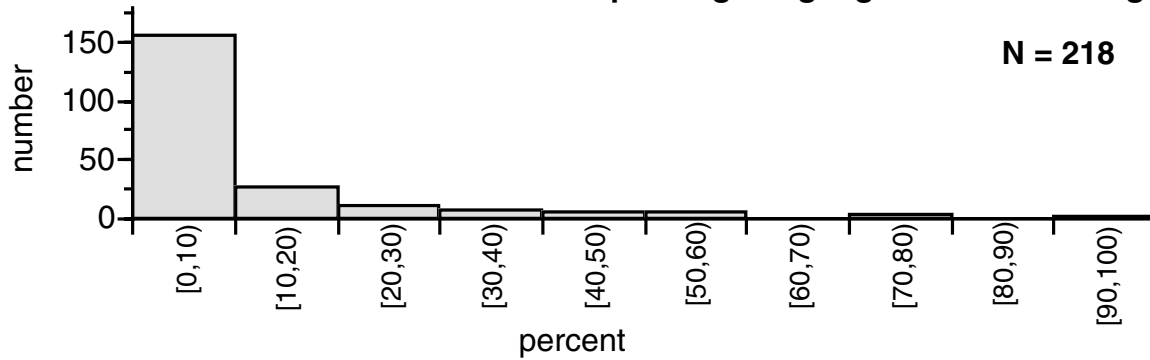
Distribution of Schools with Students Qualifying for Free and Reduced Meals
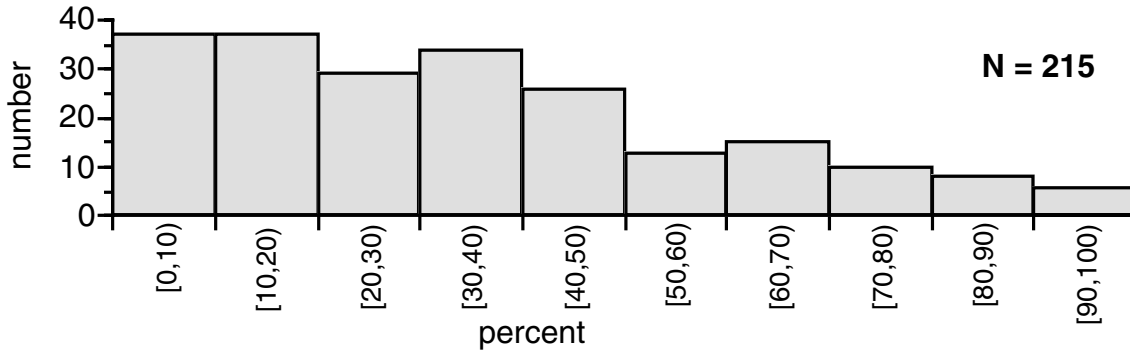
School Size
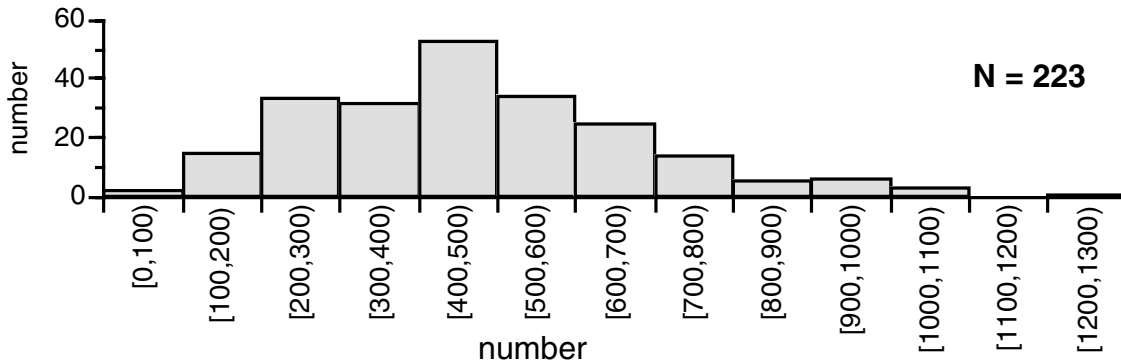
Figure 4.2 Summary of Demographic Data: Environmental Variables.

Criterion Variable: Principals' Use of Data

Principals' use of data was presented in Section I of the questionnaire, defined as the criterion variable for this study, and included questionnaire items 1-6. These six items were subjected to factor analysis using an alpha factor extraction. This analysis indicated that the six items constitute a single factor which explained a large amount of the variance and yielded high reliability. Specifically, the factor explained 48% of the total variance in the items and the measure of reliability was 0.78.

The median scores for these six items, the interitem correlations, and the Cronbach alpha for the set of items were calculated. Table 4.2 shows these results.

Table 4.2.

Medians and Correlations in Domain 1: Principals' Use of Data (criterion or dependent variable)

Variable	Median	Q1	Q2	Q3	Q4	Q5	Q6
Q1	4	1.0					
Q2	3	.48	1.0				
Q3	3	.30	.43	1.0			
Q4	3	.24	.35	.50	1.0		
Q5	3	.29	.44	.29	.39	1.0	
Q6	4	.37	.47	.39	.30	.33	1.0

Cronbach alpha 0.78

The first research question was "How do principals vary in their use of data as a tool for instructional leadership?". The data for items 1-6 provided the answer to this question.

Data concerning the responses for these six items are displayed in Figure 4.3. The results showed principals who responded agreed they use data to evaluate programs, to conduct classroom observations and post-observation conferences, to influence parent perceptions, and to

set clear goals for achievement. Of 226 respondents, 96% of the principals reported they use data to evaluate the progress the school is making toward achieving their goals. Establishing goals for student achievement is another use of data reported by 96% of the principals. The overall median for this domain is 3 and the mean is 3.29 indicating an overall agreement scale for the items (3 corresponds to the "Agree" scale used for the questionnaire). The responses for Section I of the questionnaire, Principals' Use of Data, answered the first research question by giving evidence that principals are using data and they are using data in a variety of ways to improve instruction, to increase student achievement, and to articulate information to teachers and parents.
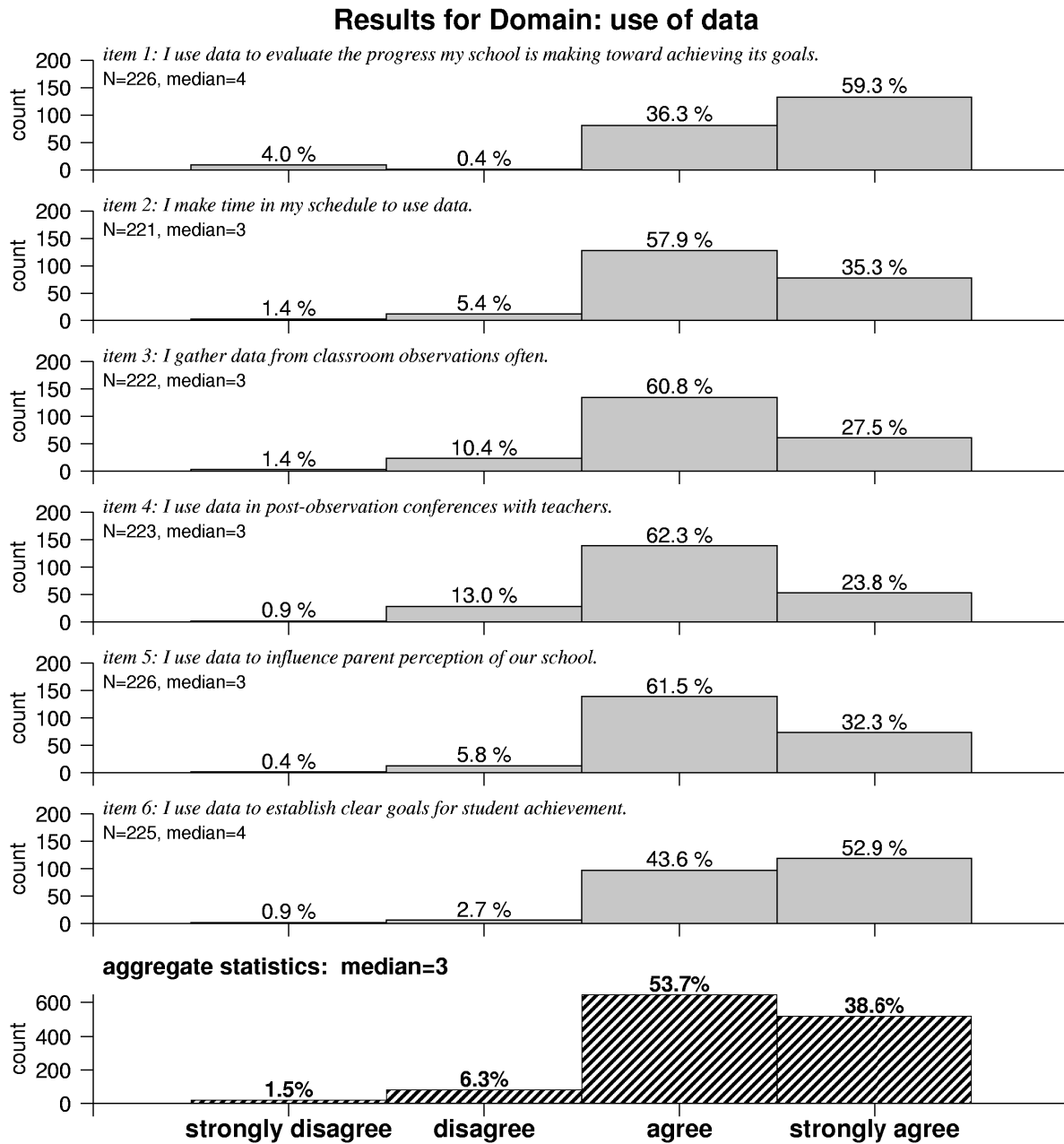
Figure 4.3 Survey Responses for Criterion Variable: Principals Use of Data (Items 1-6)

Predictor Variables for Principals' Use of Data

Factor Structure of Predictor Variables. Factor analysis was used to accomplish two purposes. The first purpose was to determine if it was possible to reduce the number of factors if factors shared commonality. The second purpose was to detect the underlying structure of the questionnaire items by determining whether each item was contributing to the domain to which it was organized on the questionnaire. There were 35 items that were subjected to factor analysis.

Several approaches were used with this step of the analysis using SPSS Version 10.0 (2000). Two extraction methods, principal component and alpha factoring were used, with both varimax and oblique rotations. Using the criterion of eigenvalues larger than one, ten factors were initially extracted. However, the last four consisted of few items and were trivial. Additionally, the scree plot indicated that the six factors would be appropriate. Varimax and oblimin rotations, after six factors were extracted, produced similar results with respect to factor structure. Table 4.3 gives the factor loading for the principal components extraction with varimax notation. These six factors accounted for 50% of the variance in the 35 items representing the six predictor domains. Only five items loaded on a different domain than was intended (Q8, Q9, Q21, Q37, and Q38). In all five, the loadings were low (less than .47) and the items tended to cross-load.

Table 4.3.

Factor Loadings for Each Item Using Extraction Method: Principal Component

	District	Competencies	Professional Development	Self perception	School Characteristics	Attitudes
Q34	.774	.149	-.014	-.062	.071	.210
Q32	.736	.122	.105	-.005	.031	.134
Q33	.733	.038	.032	.206	.024	.118
Q31	.694	-.049	.323	.073	.014	.042
Q30	.655	-.151	.251	-.024	-.020	-.092
Q35	.611	.067	.161	.272	.023	.248
Q16	-.064	.730	.181	.321	.058	.032
Q17	.078	.719	.232	.012	.079	-.040
Q15	-.016	.686	.210	-.007	-.078	.007
Q14	.048	.682	.233	.235	-.131	.062
Q13	.052	.623	.064	.141	-.030	.262
Q37	.388	.466	-.062	-.054	.402	-.199
Q38	.398	.448	.019	-.042	.340	-.030
Q24	.220	.147	.767	.108	.092	.006
Q25	.251	.122	.730	.202	.041	-.043
Q28	.137	.209	.636	.087	.070	.242
Q27	.075	.244	.631	.214	.009	.285
Q26	-.035	.213	.602	-.074	.011	-.169
Q29	.118	.049	.304	.139	.007	.195
Q20	.034	.207	.033	.769	-.011	.014
Q19	-.022	.220	.010	.710	.077	-.012
Q23	.153	.034	.161	.707	.074	.145
Q18	.122	.101	.172	.532	.227	-.055
Q8	.117	.028	.101	.436	-.277	.253
Q22	.211	-.047	.100	.253	.192	-.205
Q9	-.036	-.043	.077	.233	-.131	.127
Q40	.026	-.092	.104	.035	.780	.117
Q36	.013	-.026	.110	-.247	.691	.005
Q39	.081	-.062	.067	.344	.628	.075
Q41	.399	.275	-.092	.046	.462	.288
Q21	-.071	.146	-.065	.243	.397	-.223
Q10	.188	.071	-.073	.112	-.130	.669
Q12	-.009	-.007	.151	.110	.092	.664
Q11	.104	-.025	-.001	-.085	.104	.569
Q7	.205	.217	.198	.148	-.032	.493

Internal Consistency of Predictor Scales. The internal consistency of the domains was determined by a Cronbach alpha which is an estimate of internal reliability. This statistical procedure determines how items relate to each other and to the total group of items. NCSS (1998) was used to determine correlations of items to other items and to generate a Cronbach alpha for each predictor domain. Again, the data were analyzed several ways. The alpha was generated first using the original domain items. The data were then analyzed after omitting items indicated by factor analysis. The results of the analysis for each domain are shown in Tables 4.4 through 4.8. In each table, the Cronbach alpha calculated for all the items originally included as well as the Cronbach alpha calculated by using the items selected by factor analysis are both provided.

The organization of this section is a summary of the descriptive data gathered for each domain, a correlation table with Cronbach alpha measures, and histograms that visually represent the descriptive data. This presentation is provided for each domain that contains predictor variables.

Principals' Personal Attitudes toward Data

The responses to Domain II indicated that principals value data and the role of principal as instructional leader. The results for item 10 showed 86% of the responding principals felt multiple sources of data should be used to evaluate them. Using data to monitor student progress was a pervasive practice as 99% of principals agreed with item 12. The results for item 8 showed strong agreement of principals as 95% of the sample agreed that instructional leadership is the most important role of the principals. However, item 9 showed that 64% of the principals agreed that the amount of data they receive is overwhelming and Item 11 showed that 64% of the

respondents disagreed that schools should be compared by using data. Figure 4.4 shows the

responses for Items 7-12.

Table 4.4.

Domain 2 Personal Attitudes toward Data, Instructional Leadership and Use of Data by Others

Variable	Median	Q7	Q8	Q9	Q10	Q11	Q12
Q7	3	1.0					
Q8 *	4	.22	1.0				
Q9 *	3	.07	.20	1.0			
Q10	3	.26	.27	.09	1.0		
Q11	2	.20	.13	-.11	.26	1.0	
Q12	3	.30	.14	.05	.26	.23	1.0

* Items eliminated by factor analysis data and Cronbach alpha data
Cronbach alpha   0.52   Standardized Cronbach alpha   0.55
Cronbach alpha (four items: Q7, Q10, Q11, Q12)   0.55

Results for Domain: personal attitude

item 7: I value data as a useful tool for instructional leadership.
N=226, median=3

0.4 %   1.3 %   48.2 %   50.0 %

item 10: Principals should be evaluated by using a variety of data sources.
N=225, median=3

3.1 %   11.1 %   54.7 %   31.1 %

item 11: Data should be used to compare schools.
N=222, median=2

18.0 %   46.4 %   31.5 %   4.1 %

item 12: Data are important for monitoring student academic progress.
N=223, median=3

0.4 %   0.9 %   57.4 %   41.3 %

aggregate statistics: median=3

5.5%   14.8%   48.0%   31.7%

strongly disagree   disagree   agree   strongly agree

the item(s) below were excluded by factor analysis

item 8: The most important role of the principal is instructional leadership.
N=225, median=4

1.3 %   4.0 %   34.2 %   60.4 %

item 9: The amount of data I receive is overwhelming.
N=223, median=3

2.7 %   33.6 %   35.9 %   27.8 %

Figure 4.4 Survey Responses Predictor Variables: Principals Attitudes Toward Data, Instructional Leadership and the Use of Data by Others.

Principals' Competencies with Data

The median for the domain with variables assessing principals' competencies was 3. The results showed that principals agreed that they possess skills with reading, collecting, and interpreting data. In fact, 77% of the principals reported they consider themselves to be skillful with using statistics to interpret school data. However, 60% of the principals disagreed they have the technology skills to create data displays (item 15). Although item 29 was not in this domain, it is important to note this item gave results showing that 97% of this group of responding principals agreed they work for school districts that provide a computer for their use. It appeared principals have computers available but it was also clear that this group reported a need for staff development focusing on technology as a tool to support the use of data. Also, there was no item included on the questionnaire that made an inquiry into the availability of software applications that support data analysis and displays. Figure 4.5 shows results for Items 13-17.

Table 4.5.

Domain 3 Principals' Self-Reported Competencies with Using Data

Variable	Median	Q13	Q14	Q15	Q16	Q17
Q13	3	1.0				
Q14	3	.56	1.0			
Q15	3	.29	.46	1.0		
Q16	3	.51	.56	.50	1.0	
Q17	3	.39	.49	.45	.60	1.0

Factor analysis results indicated all items load significantly on one factor. Therefore, all items were kept for future analysis of this domain.
Cronbach alpha   0.81   Standardized Cronbach alpha   0.82

Results for Domain: competencies
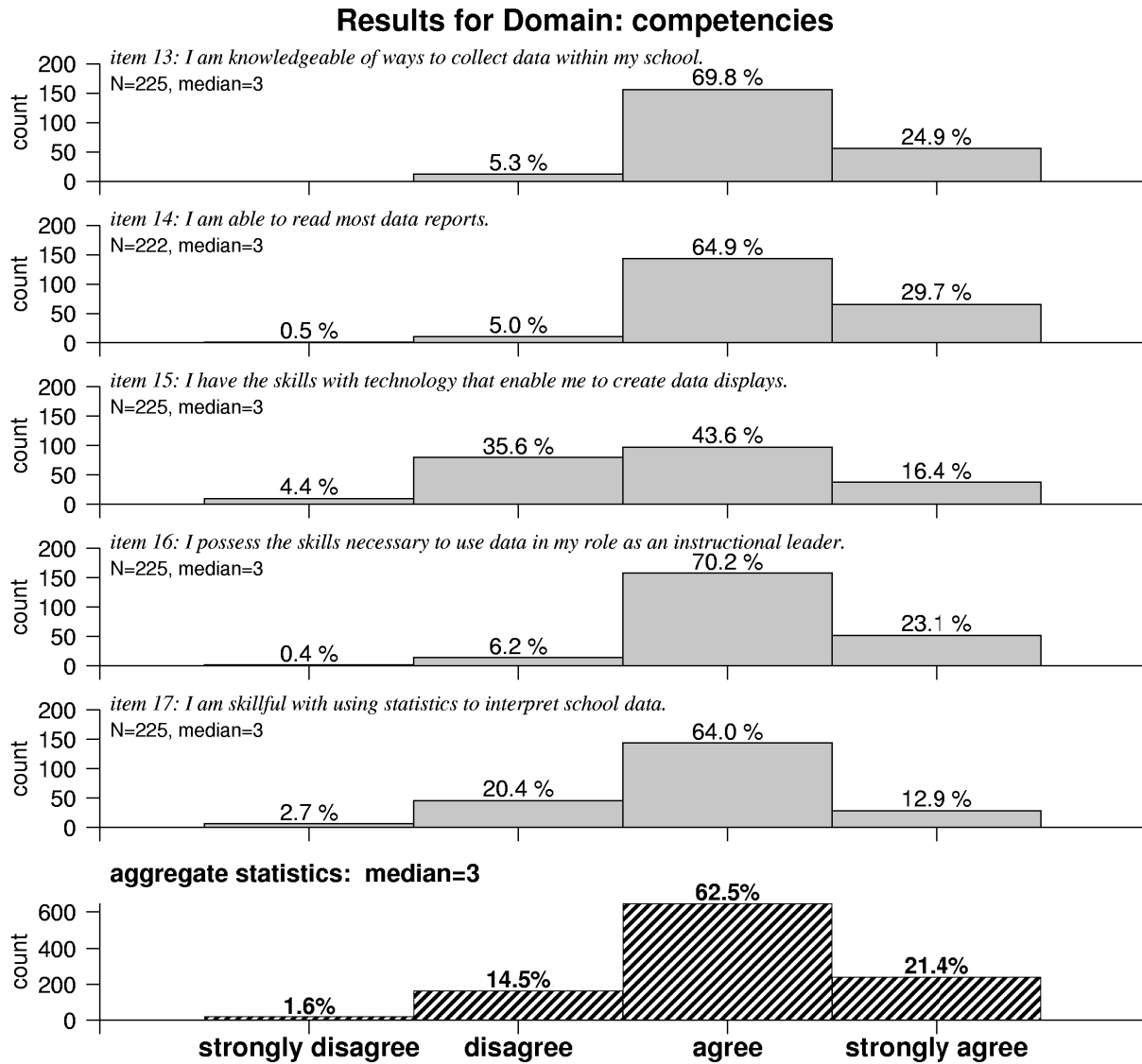
Figure 4.5 Survey Responses Predictor Variables: Principals Competencies with Using Data.

Principals' Self Perceptions of Themselves as Instructional Leader

The results for items 18, 19, 20, and 23 indicated that principals considered themselves to be instructional leaders, were willing to lead others to make changes necessary to ensure quality instruction, and felt the quality of leadership they provided affected achievement. Item 18 asked whether the principals' time at school was focused on instructional leadership activities and generated a median of 3. This datum indicated an "Agree" scale on the four point Likert scale. Only 32% of the respondents disagreed with the statement that their time at school was focused on instructional leadership. Only three respondents strongly disagreed with this statement. This was strong evidence that principals embraced the role of instructional leader. Item 19 generated results that 93% of the respondents considered themselves to be instructional leaders who lead others in making changes for the purpose of improving instruction. Item 21 showed that 31% of this group disagreed with the statement that described the most important role of principals was to run a "smooth ship". There was an even distribution of responses for item 22 with 48% of the respondents agreeing that the most important role of the principal was to establish harmonious relationship with teachers and 52 % of the principals disagreed. Item 23 generated data that principals saw a direct link to their leadership and student achievement as 98% of the respondents agreed with the statement. The results for this domain gave evidence that principals already saw instruction as a priority and that principals considered their leadership to be a direct contributor to student achievement. Figure 4.6 shows the responses for items 18-23.

Table 4.6.

Domain 4 Principals' Personal Perceptions of Self as Instructional Leader

Variable	Median	Q18	Q19	Q20	Q21	Q22	Q23
Q18	3	1.0					
Q19	3	.50	1.0				
Q20	3	.42	.61	1.0			
Q21*	3	.14	.11	.17	1.0		
Q22*	2	.11	.10	.14	.26	1.0	
Q23	3	.38	.33	.47	.09	.21	1.0

*Items eliminated by factor analysis data and Cronbach alpha data.
Cronbach alpha   0.67   Standardized Cronbach alpha   0.69
Crobach alpha (four items: Q18, Q19, Q20, Q23)   0.74

Results for Domain: perception of instructional leader

item 18: My time at school is focused on instructional leadership.
N=222, median=3

1.4 %   30.6 %   52.7 %   15.3 %

item 19: In performing my job as principal, I consider myself to be an instructional leader.
N=224, median=3

0.4 %   6.7 %   59.8 %   33.0 %

item 20: As a principal, I see myself leading others to make whatever changes are needed to ensure quality instruction.
N=224, median=3

0.9 %   3.6 %   58.9 %   36.6 %

item 23: The quality of leadership I provide makes a difference in student achievement.
N=225, median=3

1.8 %   54.2 %   44.0 %

aggregate statistics: median=3

0.7%   10.6%   56.4%   32.3%

strongly disagree   **disagree**   **agree**   **strongly agree**

the item(s) below were excluded by factor analysis

item 21: The best description of my work as a principal is that I run a smooth ship.
N=216, median=3

1.9 %   28.7 %   54.6 %   14.8 %

item 22: The most important thing I do as a principal is to establish harmonious relationships with the teachers in my school.
N=218, median=2

0.5 %   51.4 %   37.2 %   11.0 %

Figure 4.6 Survey Responses Predictor Variables: Principals Perceptions of Themselves As Instructional Leaders.

Principals' Professional Development Opportunities

Principals' professional development opportunities were assessed in Domain V on the questionnaire. A review of the Professional Opportunities domain indicated that 65% of the respondents disagreed with item 26 which stated they had completed a course offered by a college or university emphasizing strategies for using data to improve instruction. Item 28 in the same domain showed that 38% of the respondents disagreed that they had read a book in the past year on the use of data in instructional leadership. However, item 27 showed that 90% of the principals indicated they had read professional articles in the past year on the same topic. Items 24 and 25 yielded results that indicated that principals attended conference sessions and participated in other staff development opportunities that emphasized the use of data for instructional leadership. The chi-square test of significance indicated that the null hypothesis for item 26 should be rejected. Therefore, the generalization of the data for item 26 to a larger population of principals is questionable. The finding that this group of principals had not completed a university course on data and instructional leadership may or may not describe the population of principals belonging to NAESP. Figure 4.7 summarizes the responses for items 24-28.

Table 4.7.

Domain 5 Principals' Professional Development Opportunities

Variable	Median	Q24	Q25	Q26	Q27	Q28
Q24	3	1.0				
Q25	3	.72	1.0			
Q26	2	.30	.23	1.0		
Q27	3	.56	.47	.23	1.0	
Q28	3	.40	.38	.31	.56	1.0

Factor analysis results indicated all items load significantly on one factor. Therefore, all items were kept for future analysis of this domain.
Cronbach alpha   0.76   Standardized Cronbach alpha   0.78

Results for Domain: professional development opportunities

item 24: I attended a professional conference in the past three years on the use of data to improve instruction.
N=226, median=3

4.4 %   14.2 %   38.5 %   42.9 %

item 25: I have attended staff development opportunities in the past three years that focused on the use of data as a tool for instructional leadership.
N=226, median=3

2.2 %   13.3 %   38.5 %   46.0 %

item 26: I completed a course offered by a college or university in the past five years that helped me learn strategies for using data as an instructional leader.
N=226, median=2

22.1 %   42.5 %   17.3 %   18.1 %

item 27: My professional reading in the past year has included professional articles in which the author(s) proposed the use of data as an effective tool for instructional leadership.
N=224, median=3

2.7 %   6.2 %   53.6 %   37.5 %

item 28: My professional reading in the past year has included a book on the use of data for effective instructional leadership.
N=226, median=3

4.9 %   33.2 %   35.0 %   27.0 %

aggregate statistics: median=3

7.3%   21.9%   36.5%   34.3%

strongly disagree   disagree   agree   strongly agree

Figure 4.7 Survey Responses Predictor Variables: Principals Professional Development Opportunities.

Characteristics of School Districts

Items concerning school district characteristics were included in Domain VI on the questionnaire and generated a median of 3. More than half (57%) of the principals disagreed that school districts provided incentives for principals to use data but 69% of the principals agreed that their district provided opportunities for principals to work together to understand their school or district data. The majority of school districts (97%) gave computers to principals. Item 35 showed that 88% of the responding principals worked for school districts that expected principals to use data but only 51% worked for districts that included the use of data as a performance criterion to evaluate principals. Supervisors of principals used data to make presentations as indicated by 79% of the group agreeing with item 33, but the data for item 34 that asked about supervisors monitoring principals' use of data yielded an even distribution. Data for item 34 showed 49% of respondents agreed their supervisors monitored their use of data while 51% disagreed with this statement. These results for this domain gave evidence that school districts have established an expectation that principals use data. Perhaps computers were purchased to promote this practice. However, the use of data is not currently an indicator of work performance for principals and the monitoring of principals' use of data by supervisors of principals and programs did not appear to be a universal and established routine. Domain I established evidence that data were currently used by principals but the results generated by this domain showed that the practice of using of data was motivated neither by the supervision/evaluation process nor by incentives provided by school districts. The results for items 29-35 are shown in Figure 4.8.

Table 4.8.

Domain 6: Characteristics of School District in Which Principals Work.

Variable	Median	Q29	Q30	Q31	Q32	Q33	Q34	Q35
Q29 *	4	1.0						
Q30	2	.15	1.0					
Q31	3	.19	.42	1.0				
Q32	2	.12	.41	.46	1.0			
Q33	3	.13	.34	.52	.46	1.00		
Q34	2	.09	.40	.43	.65	.51	1.0	
Q35	3	.18	.37	.44	.43	.46	.42	1.0

*Items eliminated by factor analysis data and Cronbach alpha data.
Cronbach alpha   0.81   Standardized Cronbach alpha   0.80
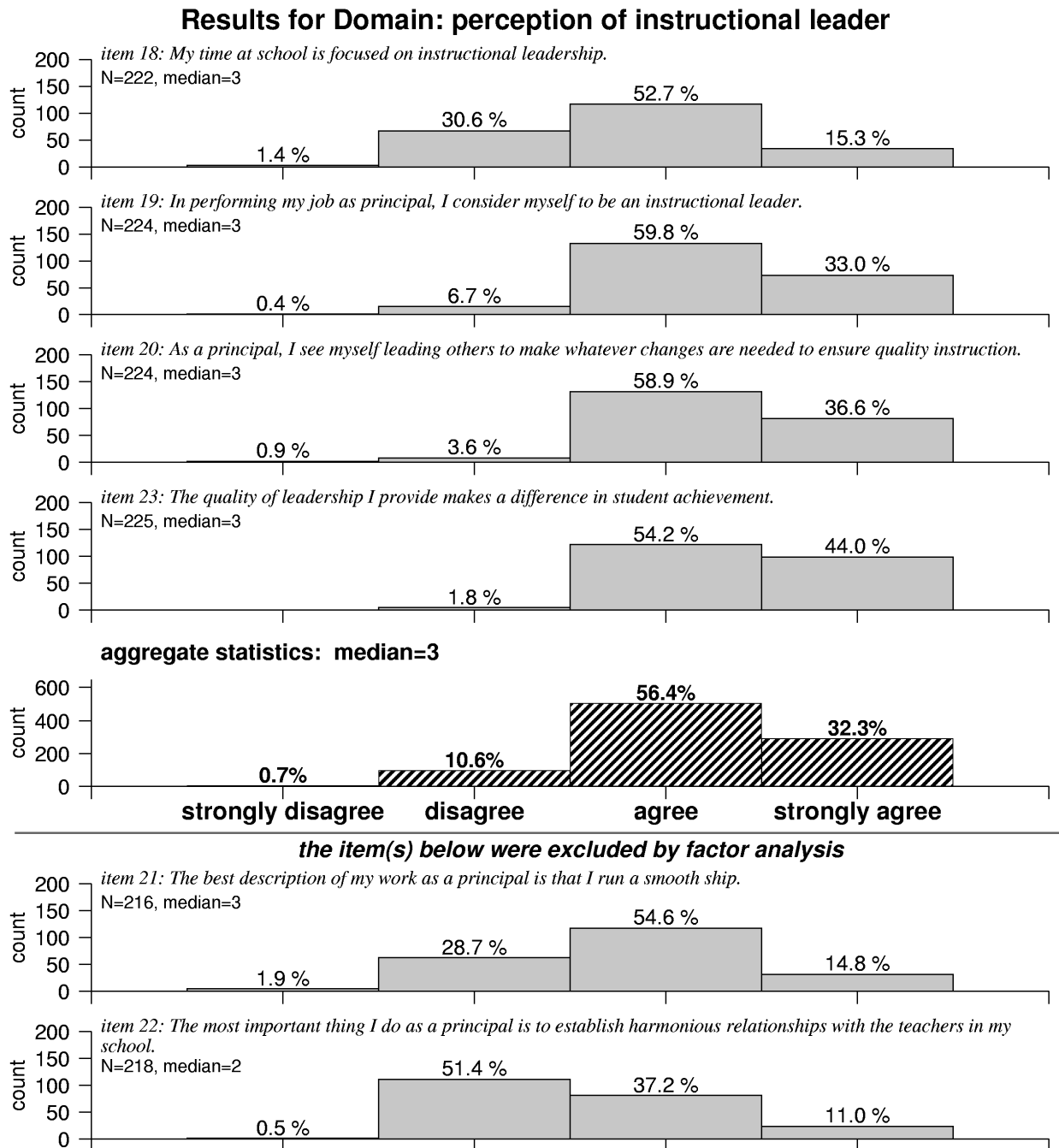Cronbach alpha (six items: Q30, Q31, Q32, Q33, Q34, Q35)   0.82

Results for Domain: school district characteristics
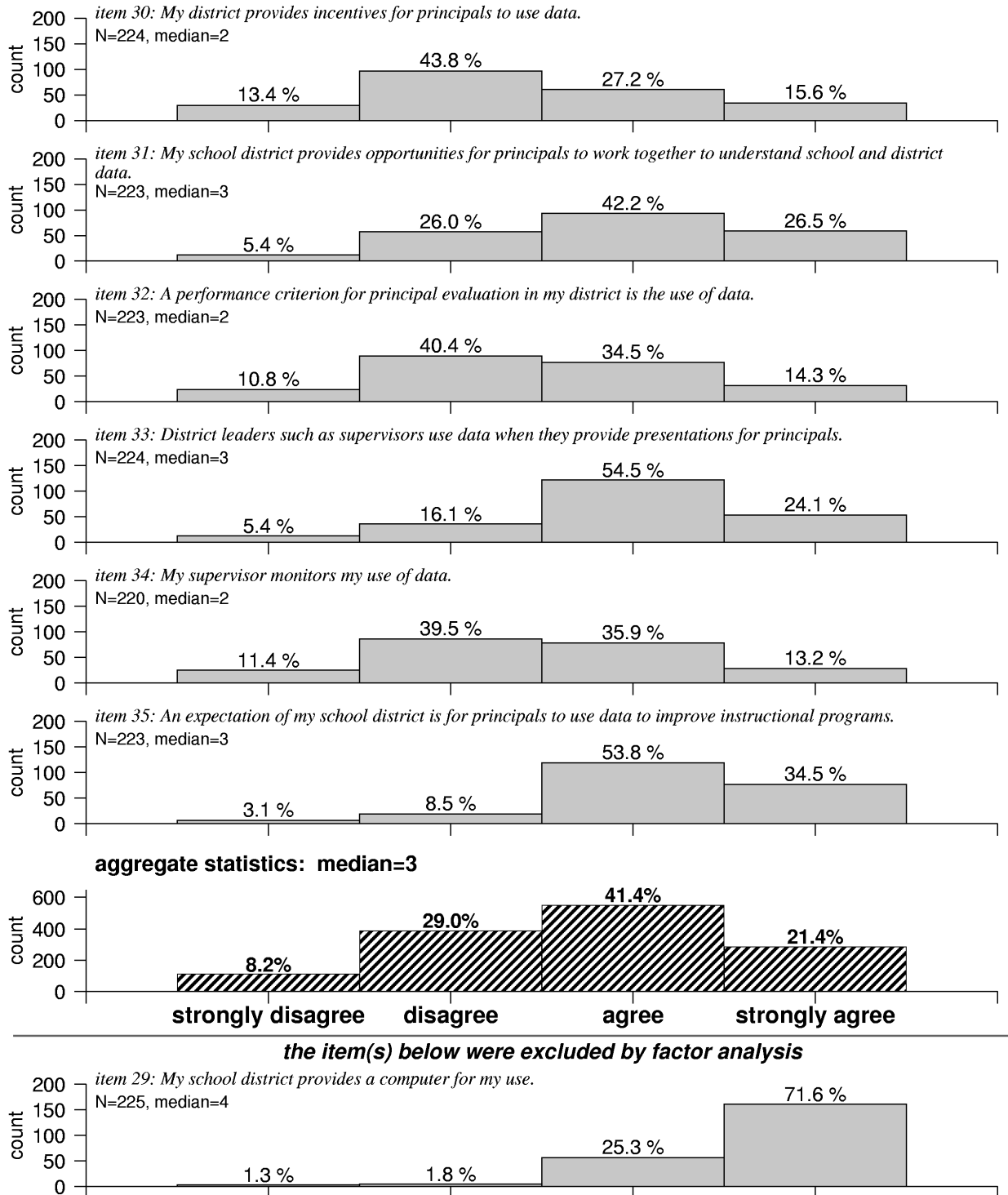
Figure 4.8 Survey Responses Predictor Variables: Characteristics of School Districts.

Characteristics of Schools

Domain VII provided six questionnaire items asking about the characteristics of the schools in which principals worked. The median for this domain was 3. Item 39 indicated that 96% of the responding principals worked in schools where the principals viewed the parents as proud of the successes of the school and that 87% of the principals considered that parents were involved with their child's education. Despite the impression that principals feel that parents are involved in their child's education, there was an equal distribution for item 36 which asked if there were enough parent volunteers in the school to provide the support that was needed. For this item, 50% of the principals agreed there were enough volunteers while 50% disagreed that there were enough parent volunteers. Two items asked if teachers viewed data as assisting them with improving instruction and with solving problems. Item 37 showed 60% of the principals agreed that teachers seek data for problem solving. Item 38 showed 78% of the principals agreed that teachers viewed data as assisting with improving instruction. Principals reported that there was an expectation of some parents for principals to use data. Item 41 showed 36% of the respondents disagreed that parents had this expectation, but 64% of the principals agreed that the use of data was a parental expectation. These results lead to other questions concerning the influence of teachers and parents on principals' use of data. The results for Domain I established that principals were using data and the results for Domain VI established that the supervision/evaluation process currently does not include performance indicators describing the use of data. What is the relationship of teachers' and parents' expectations on principals' use of data? How strong are these two variables at predicting principals' use of data? Figure 4.9 summarizes the data from items 36-41.

Table 4.9.

Domain 7: Characteristics of School in Which Principals Work

Variable	Median	Q36	Q37	Q38	Q39	Q40	Q41
Q36	2	1.0					
Q37 *	3	.24	1.0				
Q38 *	3	.19	.69	1.0			
Q39	3	.29	.15	.15	1.0		
Q40	3	.50	.19	.17	.53	1.0	
Q41	3	.25	.34	.33	.24	.39	1.0

*Items eliminated by factor analysis data and Cronbach alpha
Cronbach alpha   0.72   Standardized Cronbach alpha   0.73
Cronbach alpha (four items: Q36, Q39, Q40, Q41)   0. 78
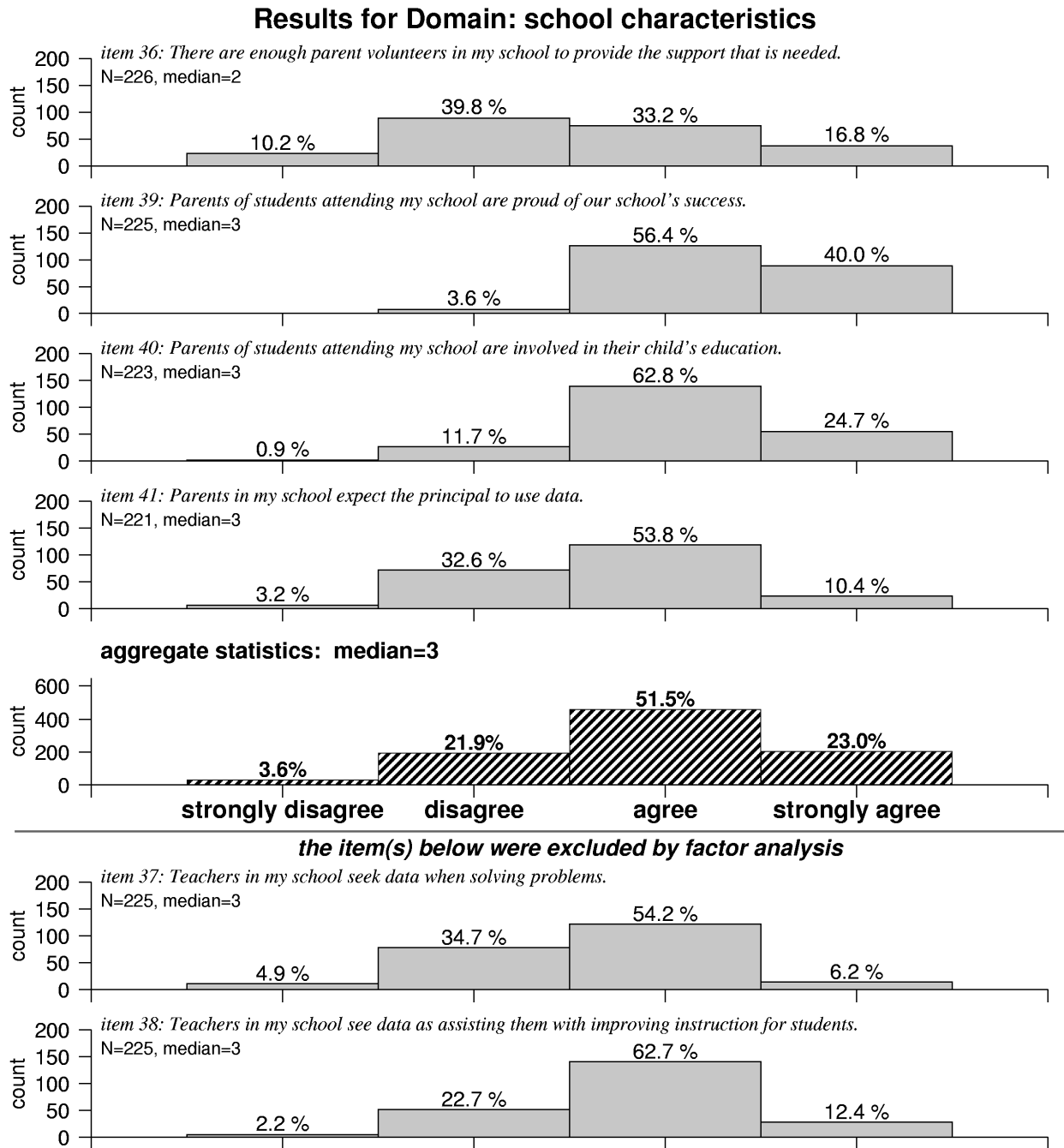
Figure 4.9 Survey Responses Predictor Variables: Characteristics of Schools.

Open-Ended Comments

Conditions Promoting Use of Data

The format for two items was open-ended and gave respondents an opportunity to create their own responses to the items. One prompt asked for principals to consider at least one and no more than three circumstances or conditions that motivate, promote, or drive them to use data. The responses were recorded verbatim and grouped by domain for content analysis. A limitation of open-ended items is that survey participants will not take time to respond to this type of item. However, this item yielded responses from 73% of the respondents. A general description of the responses for these open-ended items is provided and a complete list of responses organized by domain is found in Appendix J.

Motivators to Principals' Use of Data

Two principals were motivated to use data to show student achievement because they wanted evidence to make changes to improve instruction. Data were also reported as being useful with evaluating goals and identifying strengths and weaknesses. The use of data for curriculum revision and evaluating schools' successes were included. Of course, test scores and accountability were a part of the responses but one principal stated his/her personal belief that data fostered change in instructional practice and substantiated the good work that teachers do to help all students meet academic standards.

Comments about Predictors of Principals' Use of Data

Principals' Attitudes. Responses indicated a wide range of responses from one principal who gave a one word response that "force" would motivate him/her to use data to another principal who reported he/she enjoyed making graphs to display data for the purpose of

motivating people. Several personal beliefs were included in these responses. One respondent stated that teachers like the information gained from data and that data are helpful for instructional decisions. Another personal belief was that data are helpful for instructional decisions. Financial incentives offered by school districts were mentioned as a motivator as well as personal desires to see students succeed.

Principals' Self Perceptions. The responses for this domain included statements indicating data were instrumental for principals to determine their personal success and expressions of principals' high expectations and personal desires for students to achieve. One respondent gave a statement that data helped focus energy and effort.

Principals' Competencies and Professional Development Opportunities. No responses were generated for these domains.

Characteristics of the School District. The responses grouped for this category listed indicated district mandates, district assessments, reporting methods, accountability, and district expectations motivated principals to use data.

Characteristics of the School. Expectations of parents and the availability of technology in the school were indicated as promoting the use of data.

Conditions Inhibiting Use of Data

The second open-ended item asked respondents to offer at least one but not more than three conditions for circumstances that prevented or inhibited principals' use of data. This item generated responses from 64% of the respondents. A general description of the comments collected for each domain is included and the complete list of responses for this item is found in Appendix I.

Inhibitors to Principals' Use of Data

The comments concerning inhibiting conditions or circumstances included assessments, time to work with staff, the ease of retrieving data, and the comparison of students from year to year.

Comments about Inhibitors to Predictor Variables

Principals' Attitudes. Inhibitors included in the responses were the absence of timely data, insufficient pertinent data, competing job responsibilities of the principal, and lack of sufficient time to retrieve and analyze data. Several comments about the quality of data that principals received were provided. For example, comments indicating that if data are not disaggregated so principals can extract the information they need, if data were irrelevant and considered useless, and if the format in which data were presented is complicated, then the use of data was inhibited. One participant commented that students were constantly being assessed and that the amount of assessment limits the time needed to analyze and disseminate the data before another assessment is administered.

Principals' Self-Perceptions. The overwhelming responses of principals surveyed included an indication that the management responsibilities assigned to principals inhibited the use of data. One principal stated, "Sometimes the managing of my position gets in the way of leading".

Principals' Competencies with Data. The comments indicated a lack of skills inhibited principals from using data. Specifically, the respondents indicated that they need training with organization, time management, statistics, the collection of data in the classroom, the determination of which data are important, and the utilization of data to solve problems. However, the overwhelming number of responses expressed a need for more technology training.

Professional Development Opportunities. Only two comments were collected for this domain and both comments indicated lack of training was an inhibitor to their use of data.

Characteristics of School Districts. The inhibitors collected for this domain included the management duties assigned to principals. Two respondents indicated that teachers' contracts prohibited the use of student data to be accumulated or used for evaluation and that teachers' reluctance to use data served to inhibit their use of data. One comment indicated that it was difficult to obtain data from their central office. There were two comments that the districts for which the respondents worked have no central data management system available and one of the respondents indicated that his/her district had all data entry done manually at the school level.

Characteristics of the School. There were also two new comments concerning the effect of the student body on the use of data. A transient student body and a student body for which the demographics were changing were indicated as inhibitors.

Repeatedly the word time appeared in responses to item 49 and these responses were collected in a separate category labeled "Other". Time to collect, to analyze, to learn, and to manipulate data were listed as inhibitors to using data.

Relationships Between Use of Data and Predictor Variables

Multiple regressions were used to answer the second research question, "What is the relationship between the use of data and two categories of variables: Personal and Environmental?" Once the relationship is known, this information would indicate which personal and environmental variables are the strongest predictors of the criterion variable, principals' use of data.

The multiple regressions were run in several different ways. The first multiple regression used scale scores created by averaging subsets of items based on the factor analysis and

reliability analysis. The correlation among the scale scores was weak (<.21). A second regression

was done using the scale scores created with factor analysis using an alpha extraction. The third

regression used factor scores using a principal component extraction and oblique rotation. The

correlations generated from this analysis are presented in Table 4.10. The final regression used

factor scores derived from the principal component analysis with varimax rotation. This was

done to utilize all the data in the 41 items in orthogonal variants. Results were consistent across

all the regressions and only those using the independent factors from varimax rotation are

presented.

Table 4.10

Correlations for Use of Data and Six Factors Identified by Principal Component Factor Analysis with Oblimin Rotation

	Use of Data	Attitudes	Competencies	Self-Perceptions	Prof. Develop.	District	School
Use	1.0						
Attitudes	.47**	1.0					
Competencies	.36**	.20**	1.0				
Self-Percep.	.43**	.30**	.49**	1.0			
Prof. Develop.	.37**	.23**	.47**	.35**	1.0		
District	.32**	.28**	.23**	.23**	.33**	1.0	
School	.12*	.03	.13*	.08	.14*	.10	1.0

*p ≤ . 05   **p ≤ .01

Demographic data were entered into the regression in two blocks. Personal demographic

data including gender, years of experience as a principal, and years of teaching experience were

entered in Model 1. In Model 2, environmental data such as percentage of students who qualified

for Free and Reduced Meals (FARMS), percentage of ESOL students, and total number of

students in the school were entered. In Model 3, the demographic data were regressed with the domains containing personal variables (principals' attitudes, competencies, self-perceptions, professional development). Finally, in Model 4, the demographic data were regressed with all the domains. Overall results from these regressions are presented with Table 4.11 and 4.12.

Alone personal variables explained a statistically non-significant 4% and environmental variables added a statistically non-significant 1% to the variance explained. After controlling for the demographic variables, domains with personal factors accounted for a statistically significant 25% of the variance in use of data. Finally, the two environmental factors contributed an additional statistically significant 12%.

Table 4.11.

Hierarchical Regression Using Factors from Principal Component Analysis and Controlling for Demographics

Variables	Beta Model 1	Beta Model 2	Beta Model 3	Beta Model 4	t value Model 4	P value Model 4
Personal Variables-						
-Gender						
- Exp	-.18*	-.15	-.05	-.01	-.09	.926
- Teach Ex	.07	.08	.05	.18	.98	.331
	.09	.09	.07	.08	.16	.247
Environ. Variables						
- ESOL						
- FARMS		.09	.07	.01	.15	.878
- Total No		-.03	-.02	-.04	-.58	.566
Students		.07	.02	-.01	-.17	.862
Personal Factors						
-Attitudes						
-Compet			.38*	.38**	5.98	.000**
-Self-Per			.25*	.25**	3.85	.000**
-Prof Devl			.22*	.24**	3.56	.001**
			.11	.09	1.29	.199
Environment Factors						
-District				.28**	4.31	.000**
-Schools				.24**	3.49	.001**

* p ≤ .05   ** p ≤ . 01

Table 4.12

Results of Four Regression Models-Hierarchical Regressions with Demographic Data Included

Model	R Squared	R Squared Change	F Change	Sig f change
1	.04	.04	1.96	.12
2	.05	.01	.72	.541
3	.30	.25	13.47	.000**
4	.43	.12	15.40	.000**

*p ≤ .05   ** p < .01**
R squared = 43%

The predictors accounted for 43% of the variance of the data. In model 1, the only personal variable that was statistically significant was gender. In model 2, gender was no longer statistically significant when environmental variables were included in the regression. Model 3 showed that the four personal factors regressed with demographic data yielded three statistically significant contributors to principals' use of data. Principals' attitudes, principals' competencies, and principals' self-perceptions were the strongest contributors for principals' use of data. In the fourth regression model, principals' attitudes, characteristics of the district, principals' competencies, principals' self-perceptions, and characteristics of the school were all statistically significant. Professional development was not shown to be statistically significant.

The diagnostic output of the regression identified three cases for examination as they were outliers. These three cases were reviewed to determine if any patterns or explanations were possible. A box and whiskers visual was created to view the distribution of the data for each of the three cases. Additionally, an analysis to compare the results of regressions both with and without the outliers was completed. Statistically significant domains and R squared results are shown in Table 4.13.

Although the amount of explanation provided by the variables increased slightly with the omission of the three cases, both regressions produced consistent results. Both attitudes and district characteristics had the strongest relationship with principals' use of data. The results were also consistent as competencies, self-perception, and school characteristics were shown to be statistically significant. However, characteristics of the district showed a stronger relationship with use of data and professional development became a statistically significant contributor when the three outliers were omitted. An examination of these three cases did not produce any reason for their outlier status.

Table 4.13

Comparison of Betas for Regression With and Without Outliers

Regression 1 All Data Included	Regression 2 Three Outliers Omitted
Statistically Significant Domains	Statistically Significant Domains
Attitudes (.38)	District (.34)
District (.28)	Attitude (.31)
Competencies (.25)	Competencies (.25)
Self-Perception (.24)	School Characteristics (. 25)
School Characteristics (.24)	Self-Perception (.18)
	Professional Development (.17)
Not Statistically Significant	
Professional Development (.09)	Not statistically Significant: None
R squared = .43	R squared = .45

Summary

The results of the analyses provided information about the response return rate, the group of non-respondents, and a demographic profile of the principals who participated. The results also provided answers to the two research questions posed for this study.

The response return rate was 51% and there was no likely bias between the first group of respondents who returned their questionnaire before January 31 and the group of respondents who returned their questionnaire after February 1. The demographic data was used to create a respondent profile that is visually represented with Figures 4.1 and 4.2.

The information gained from the descriptive analysis answered the first question concerning how principals vary with their use of data. Domain I generated strong evidence that principals were using data in a variety of ways and greatly valued data as a tool for instructional leadership. Principals reported attitudes that supported the use of data as 99% of the respondents saw data as important to monitoring student performance, 98% of the respondents viewed data as a valuable tool for instructional leadership, and 86% of the respondents felt that principals should be evaluated using multiple sources of data. Principals felt they were skillful with reading, collecting, interpreting, and using data but 40% of the respondents indicated they needed additional training in using technology to make data displays. This was also supported by the open-ended content analysis. Principals attended conferences, development offerings, and read professional articles on the use of data in instructional leadership. There was less agreement that principals were accessing a university course or reading a book to gain this information and skills. An equal percentage of principals were monitored by their supervisors as compared to the percentage of principals not monitored by their supervisors. Principals felt that school districts

have established an expectation for them to use data to improve instruction but only 64% of the respondents felt that parents have this same expectation.

Factor analysis determined that items 1-6 that were identified to measure the criterion variable, Principals' Use of Data, constituted one factor, explained 50% of the variance, and yielded a high reliability of 0.78. Factor analysis indicated a six factor structure with only six items cross loading. The internal consistence measures for each domain ranged between 0.74 and 0.82 with the exception of the domain assessing principals' attitudes which had a measure of 0.55. The six factor structure was used for the multiple regressions.

The multiple regressions answered the second research question concerning the relationship between several predictor variables and the criterion variable, principals' use of data. If outlier data were included in the analyses, there were five domains found to be statistically significant for defining a relationship with principals' use of data. The strongest relationships were principals' attitudes, district characteristics, and principals' competencies. Principals' self-perceptions and school characteristics were also found to be statistically significant but professional development was not. When outlier data was omitted from the analyses, all six domains were found to be statistically significant and the strength of the relationship of professional development with use of data became much stronger. The only statistically significant personal variable was gender and this significance disappeared when all factors were entered into the regression.

CHAPTER V

FINDINGS, IMPLICATIONS, AND FUTURE RESEARCH

The purpose of this study was to describe how principals working in the United States vary in their use of data as they work as instructional leaders and to investigate the relationship between specific personal and environmental variables and principals' use of data. The information gained from this study can be used by school districts, colleges, universities, and professional organizations to plan recruitment and retention efforts designed to attract and keep principals. In addition, this research can be used to serve as a foundation for future studies concerning the use of data in instructional leadership. This chapter summarizes the research limitations, the findings taken from the results, implications for practice and educational systems, and recommendations for future research.

Limitations

The limitations of using the findings of this study to extend from the sample group to the general membership of NAESP were considered. A random selection process was purposefully used to identify a sample that was representative of the professional organization. Additionally, the sample included NAESP members from all geographic areas of the U.S. Questionnaires were also returned from all geographic areas of the U.S. When the group responding to the first mailing was compared to the group responding to the second mailing, the results of the two tests of significance indicated no systematic bias. Therefore, these findings can be generalized from the sample group to the general population of NAESP.

No information is known about the U. S. principals who are not members of NAESP and who had no possible chance of being selected to participate in this study. However, there is no

reason to suspect that NAESP members are dramatically different from non-members. Future research that includes this large group of principals who do not belong to NAESP would provide an even broader national perspective.

Findings

There are four findings that can be summarized as a result of this study. First, there were five statistically significant variables that contribute to principals' use of data. The strongest predictors were principals' attitudes toward data and characteristics of school districts. Principals' competencies and self-perceptions as well as characteristics of their individual schools also proved to be statistically significant with influencing the practice of using data. Professional development was a statistically non-significant contributor to the use of data by principals.

A second finding was that U.S. principals were embracing the role of instructional leader and were using data in various ways to provide instructional leadership. The descriptive information gathered for the criterion variable showed strong agreement among principals that instructional leadership is a priority despite their other professional demands that were described in the open-ended responses. Principals were using data to establish performance criteria for students, to monitor student progress, to set goals for their schools, and to articulate progress of their schools. The descriptive data gave strong information to support this conclusion including the statement, "No conditions would prevent me from using data. It is a matter of priority, training, and support from the district office."

A third finding was that principals, in general, felt they possess personal skills with reading, interpreting, and understanding data but many felt they would benefit from more staff development with technology to assist them with displaying data. The range of responses

concerning staff development was varied. Some of the open-ended responses indicated a need for principals to learn how to collect classroom data, how to determine the importance of various data, and how to identify ways to use data to solve problems. These data present implications for designing staff development.

A fourth finding was that school districts can influence principals to use data. The open-ended responses gave insight into what motivates principals to use data. A consistent response was that district testing and accountability were influential for principals. However, there were other motivators ranging from one respondent who said, "I enjoy making graphs" to other respondents who reported personal high expectations and strong desires to see students succeed. The leadership theories presented at the beginning of this dissertation discussed four theories as a foundation for understanding what influenced leadership behavior and how leadership behavior can be changed. District leaders should possess a strong knowledge of their building leaders so that those incentives, resources, and initiatives that are needed to motivate strong building leadership are in place. Additionally, more research that focuses on the effect of the district may better measure the strength of this relationship.

<div align="center">

Implications and Recommendations

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Considering the strong evidence that principals were already incorporating data in their practice, there is a need for more information about the strategies utilized by principals who are able to increase student achievement. The purpose for using data is to connect student performance results to classroom practice. More information is needed to determine how effective principals use data to influence teachers to change their instruction, to monitor student performance, and to evaluate the effectiveness of school programs. These practices with using data as a tool for change should be identified and disseminated to others.

There are additional implications for planning staff development for principals. This study gave evidence of varied needs of principals. Many principals felt quite confident of their skills while others identified in their open-ended responses that their skills were a barrier to using data. Some principals indicated that they understand data but that they need more help with integrating technology. Whatever the needs of principals are in this area, the wide range of responses gathered by this research implied the administration of a needs assessments preceding any staff development and that these data be used to plan and deliver training. The results from this research point toward the need to deliver several differentiated professional development programs in order to meet the needs of principals. Also, in general, school districts do not provide enough opportunities for principals to work together for the purposes of understanding and exploring data. Having principals come together to share strategies for using data and technological skills with storing, analyzing, interpreting data, as well as showcasing new software and hardware possibilities could only enhance principals competencies, their personal perceptions of themselves as instructional leaders, and their use of data.

A third implication from this study is that an analysis of the specific duties of principals should be considered so that they are protected from tasks and responsibilities that prevent them from serving as instructional leaders. The multiple demands of the job were evident in the open-ended responses. Principals reported the demands of management, social work, and other assigned duties inhibited their use of data. Two respondents indicated that they served two schools while one respondent stated he/she served three schools. One of the responses to one of the open-ended items described the situation best with, "Sometimes the managing gets in way of the leading." A fundamental consideration is whether data analysis should be a responsibility assigned to principals or whether data analysis should be delegated to other personnel who are

given specialized training. This would relieve principals of data analysis so that they could interpret the results of the analysis. It is essential to understand the primary expectations for principals and to reassign or eliminate responsibilities that hinder them from being effective with their primary responsibility. In other words, the job description for principals needs to be written to reflect the role of the instructional leader and the national standards for school leaders should contribute to this endeavor.

A final implication from this study is that, since the use of data is considered a vital practice for moving America's schools to higher levels of achievement, then the recruitment and selection of principals must include candidates who demonstrate dispositions and skills that make it possible for them to use data. Candidates who demonstrate skills with using data in the school improvement process, who possess receptive attitudes about including data in their practice, and who see themselves as instructional leaders should be selected. These school leaders must understand not only data but the change process and have a variety of strategies to move teachers to change classroom practice.

<div align="center">Future Research</div>

This research left several areas unresolved and provide possibilities for future research. There are four areas. First, this study did not clearly identify what specifically motivates principals to change from manager to instructional leader. The results did not indicate that the evaluation/supervision process has pushed principals into using data. It is also unclear how teachers' and parents' expectations and experiences with data influence principals' leadership behavior. The words "accountability" and "test scores" were repeated in the open-ended responses but these terms need more explanation to determine the true motivators for principals

to use data. Information about what motivates principals would be instrumental for school districts to recruit and maintain a full pool of candidates for principal positions.

A second area that is open for research is the specific strategies and techniques used by principals when they work with teachers, parents, and students. This national survey provides evidence that principals are using data and see themselves as instructional leaders but additional information on techniques used would be very helpful with enhancing the skills of other principals. Different research techniques other than survey research may be more appropriate for these studies. Research approaches including observations, shadowing, and interviewing may be more effective with researching this area.

The third area that is open for research is an explanation of what barriers, conditions, or myths are operating in schools to prevent data usage. The open ended responses consistently reported the word "time". Is the time to understand the data the problem? Is it time taken from the other duties of the principal? Is it time principals have to work with teachers using the data? Also, there were consistent responses supporting how principals feel about the quality of data provided to them. The timely arrival of data, the amount of data, the relevance of the data provided, and whether the data was disaggregated for principals to gain the information they need were offered as barriers. Information about these barriers and how they operate in our schools could assist with removing them.

A final area open for future inquiry is research that focuses on any of the five domains found to be statistically significant with influencing principals' use of data. This focused research would add depth to understanding principals' performance and assist school districts and principals with promoting the use of data with improving student achievement.

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LIST OF APPENDIXES A-M

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     Printer's version of questionnaire

Appendix B: Literature Review and Variable Matrix
    Summary of research resources and variables presented by each source

Appendix C: Domains and Descriptions of Domains
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Appendix E: Data From Pilot # 1

Appendix F: Content Validation Pilot #2
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Appendix I: Open-ended Response Summary of Inhibitors

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Appendix K: Questionnaire Responses by Item with Descriptive Data

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APPENDIX A:

QUESTIONNAIRE-PRINTER'S VERSION

Panel 1

Dear NAESP Member,

The National Association of Elementary School Principals is endorsing a study that will assist school districts and universities with preparing aspiring principals for America's schools. The study includes a survey of practicing elementary principals to determine their current use of data as they work as instructional leaders and the variables that contribute to their use of data.

Your time as a practicing principal is limited and very valuable. However, you can greatly contribute to this work by completing the enclosed questionnaire and by returning it in the enclosed stamped and addressed envelope. Please make every effort to return the questionnaire by 1/31/02. If **you do not wish to participate, simply return the blank questionnaire in the enclosed envelope**.

Your responses will be kept confidential. You are not asked for any identification information but a numeric code is on the survey to assist with data entry. Data gathered from this survey will be presented without making reference to individual respondents or school districts.

The Virginia Tech University's Research and Human Subject Review Committee has approved this study. Completion of the survey is voluntary. You also may select to not answer any item that you do no wish to answer. By completing and returning this survey, you are giving your consent to participate in this study.

The completion of the survey should take about 20 minutes and your time is greatly appreciated. If you wish to review the results of the study, please indicate "yes" on the prepaid postcard which is provided and mail it.

Thank you in advance for your contributions as we work together to support research activities that are designed to enhance our profession.

Vera Torrence Cecelia Krill

Doctoral Candidate Professor

Questionnaire—Panels 2 and 3

Elementary Principals' Use of Data: A National Perspective

Directions: Please read each item and shade in your response. Please do not omit any items unless you are uncomfortable with answering the item.

Definition: The term "data" is defined for this survey as any evidence or information that is useful to a principal as he/she plans and evaluates the instructional program of the school and is used to measure, describe, or monitor student progress.

Part I: Your Use of Data

1. I use data to evaluate the progress my school is making toward achieving its goals.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
2. I make time in my schedule to use data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
3. I gather data from classroom observations often.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
4. I use data in post-observation conferences with teachers.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
5. I use data to influence parents' perception of our school.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
6. I use data to establish clear goals for student achievement.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree

Part II: Your Personal Attitudes Toward Data, Instructional Leadership in general, and The Use of Data by Others

7. I value data as a useful tool for instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
8. The most important role of the principal is instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
9. The amount of data I receive is overwhelming.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
10. Principals should be evaluated by using a variety of data sources.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) strongly agree
11. Data should be used to compare schools.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) strongly agree
12. Data are important for monitoring students' academic progress.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree

Part III: Your Self-Reported Competencies with Using Data

13. I am knowledgeable of ways to collect data within my school.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
14. I am able to read most data reports.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
15. I have the skills with technology that enable me to create data displays.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
16. I possess the skills necessary to use data in my role as an instructional leader.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
17. I am skillful with using statistics to interpret school data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree

Part IV: Your Perceptions of You as an Instructional Leader

18. My time at school is focused on instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
19. In performing my job as principal, I consider myself to be an instructional leader.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
20. As principal. I see myself leading others to make whatever changes are needed to ensure quality instruction.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
21. The best description of my work as a principal smooth ship".
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
22. The most important thing I do as a principal is to establish harmonious relationships with the teachers in my school.

( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
23. The quality of leadership I provide makes a difference in student achievement.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
Part V: Your Professional Development Opportunities
24. I attended a professional conference in the past three years on the use of data to improve instruction.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
25. I have attended staff development opportunities in the past three years that focused on the use of data as a tool for instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
over .
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Panel 4

26. I completed a course offered by a college or university in the past five years that helped me learn strategies for using data as an instructional leader.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
27. My professional reading in the past year has included professional articles in which the author(s) proposed the use of data as an effective tool for instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
28. My professional reading in the past year has included a book on the use of data for effective instructional leadership.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
Part VI: Characteristics of Your School District
29. My school district provides a computer for my use.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
30. My district provides incentives for principals to use data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
31. My school district provides opportunities for principals to work together to understand school and district data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
32. A performance criterion for principal evaluation in my district is the use of data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
33. District leaders such as supervisors use data when they provide presentations for principals.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
34. My supervisor monitors my use of data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
35. An expectation of my school district is for principals to use data to improve instructional programs.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
Part VII: Characteristics of Your School
36. There are enough parent volunteers in my school to provide the support that is needed.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
37. Teachers in my school seek data when solving problems.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
38. Teachers in my school see data as assisting them with improving instruction for students.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree

Panel 5

39. Parents of students attending my school are proud of our school's success.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
40. Parents of students attending my school are involved in their child's education.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
41. Parents in my school expect the principal to use data.
( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly agree
Part VIII: Demographic Information
Directions: Please fill in the blanks.
42. My gender is _____ Male _____ Female
43. As of September 1 of this school year, I have served as a public school principal for _____ years.
44. The grade levels in my school are _____.
45. I served as a teacher for _____ years prior to becoming a principal.
46. The percentage of students in my school who speak a language other than English is _____.
47. The percentage of students in my school who qualify for Free and Reduced Meals is _____.
48. The number of students in my school is _____.
49. There are conditions or circumstances that may **prevent** you from using data in your role as instructional leader. List at least one but no more than three conditions or circumstances that **prevent or inhibit your use of data**.
_____
_____
_____
50. There are conditions or circumstances that may **motivate, promote, or drive** your use of data in your role of instructional leader. List at least one condition but no more than three conditions that **motivate, promote, or drive** your use of data.
_____
_____
_____
Thank you for your time.
Survey No. _____

APPENDIX B:

LITERATURE REVIEW AND VARIABLE MATRIX

Matrix Literature Review and Variables Influencing Principal Use of Data

	P1	P2	P3	P4	P5	P6	E1	E2	E3
Adkinson (1981)	X	X							
Bernhardt (1998)						X		X	X
Carine (1995)						X			
Creighton (2001)						X	X		
Fullan (1999)								X	X
Glasman (1984)	X	X							
Graham (1997)								X	X
Hall, Rutherford, Grifffin (1982)					X				
Hallinger, Bickman, Davis (1996)	X	X							X
Holcomb (1999)								X	X
Killion & Bellany (2000)				X		X	X	X	
Leitner (1994)									X
Leithwood & Montgomery (1982)								X	X
Lortie (1975)				X					X
McCloskey, Altschuld, Lawton (1985)					X				
Richardson (1994)						X			
Schmoker (1999)				X		X	X		
Wellisch (1978)				X	X				
Leadership Theories						X	X	X	XXX

(P) = Personal Variables
- P1 = Age
- P2 = Gender
- P3 = Years of Experience as Principal
- P4 = Principals' Attitudes
- P5 = Principals' Self-Perceptions
- P6 = Competencies of Principals with Data

(E) = Environmental Variables
- E1 = Professional Development Opportunities
- E2 = Characteristics of School Districts
- E3 = Characteristics of School

APPENDIX C:

DOMAINS AND DESCRIPTIONS OF DOMAINS

Domain Descriptions

Predictor Variables

Domains by Questionnaire Section No.	Domain Title	Descriptors
VIII Q 42-48	Demographic Data	Personal Characteristics of principals (age, gender, years of experience as a teacher, years of experience as a principal, and years of education)
II Q 7-12	Principals' Attitudes	Principals' personal attitudes toward data, the use of data by others, and the role of the principal with providing instructional leadership
III Q 13-17	Principals' Competencies	Principals' self-reported skills with using data in instructional leadership by reading, gathering, storing, interpreting, analyzing, displaying data and with integrating technology as a tool to support the use of data
IV Q 18-23	Principals' Self-Perceptions	Principals' personal view of self as an instructional leader
V Q 24-28	Professional Development Opportunities	Principals' educational background, professional conferences, professional reading, and staff development
VI Q 29-35	Characteristics of School District In Which Principal Works	1. Size, demographics, job expectations from superintendent and other superiors, work requirements defined by job descriptions, district missions, evaluation process for principals 2. Fiscal, technical, human support provided by the school district for the use of data
VII Q 36-41	Characteristics of School to Which Principal is Assigned	1. Size, socio-economics, and school grade level organization of school 2. Attitudes, expectations, and skills of teachers assigned to the school 3. Community involvement and expectations

Criterion Variable

I Q 1-6	Principals' Use of Data	Principals' use of any evidence or information that is useful with planning and evaluating school program and is used to measure, describe, and monitor student progress.

APPENDIX D:

CONTENT VALIDATION PILOT #1

Dear Participant,

Thank you for agreeing to review a pilot survey instrument and to give input into the design of the questionnaire. This nationwide survey will be administered to elementary principals to determine their use of data in instructional leadership. For the purposes of this study, the term "data" is defined as any evidence or information that is useful for planning or evaluating instructional programs and with measuring, describing, or monitoring student progress.

Information gained from this pilot will be used to finalize the survey instrument which will include no more than 60 items that are deemed to measure the domains described on the next page. Some items from the pilot study will be omitted or rewritten as a result of your input.

Directions for Part I
1. Read each item.
2. Rate each item for clarity using a scale of 1-3
   1=unclear   2=somewhat clear; revise item   3=clear; leave as written
3. Use the Domain Descriptions on the next page to indicate for each item the domain that matches the item.

Directions for Part II.
Read each item and give a rating for clarity using the same scale you used for Part I.

Directions for Part III
Read each item in Part III and give your suggestions concerning your general reaction to the survey, details about administration, and racial bias.

   Thank you for your help.

                                        Sincerely,

                                        Vera D. Torrence

Part I

Directions:

1. Read each item.

2. Rate each item for clarity.

1 = unclear   2 = somewhat clear; revise item   3 = clear; leave as written

3. Use the Domain Descriptions and indicated for each item the domain that is described.

Definition:

The term" data" is defined as any evidence or information that is useful for planning or evaluating instructional programs and with measuring, describing, or monitoring student progress.

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
1. I value data as a useful tool for instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
2. The most important role of the principal is instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
3. The job description for a principal employed by my district includes the use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
4. I consider myself to be an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
5. I am knowledgeable of statistical analysis. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
6. I see myself as a change agent. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
7. I have read a professional book in the past year that supported the use of data as a tool for instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
8. District leaders of my school district model the use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
9. My school district expects principals to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
10. I understand statistical terminology. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
11. My district provides a computer for my use. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
12. My role as principal is to implement programs identified by the district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
13. Data should be a tool for members of the Board of Education to use. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
14. A job requirement of central office staff working in my school district is to assist principals with data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
15. Data are provided to principals by my school district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
16. Teachers in my school possess the knowledge to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
17. I am skillful with using technology for data displays. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
18. I share data with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
19. I read a professional article in the past year in which the author(s) proposed the use of data as a tool for instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
20. Data can be connected directly to classroom practice. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
21. A variety of data sources including test scores should be used to evaluate teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
22. The most important thing I do as a principal is to establish harmonious relationships with the teachers in my school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
23. I am able to read most data reports. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
24. I am knowledgeable of how to collect data within my school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
25. I attended a professional conference in the past three years on the use of data to improve student achievement. ( ) strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
26. My supervisor monitors my use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
27. When solving problems in my school, teachers seek data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
28. A performance criterion for principal evaluation in my district is the use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
29.Teachers in my school view data as a tool for improving student achievement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
30. Data are the primary indicators of a teacher's effectiveness with students. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
31. I frequently use data as an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
32. Principals should be evaluated by using a variety of data sources. Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
33. The mobility rate of my school is high. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
34. When planning school programs, a school inventory of available text and non-print resources is important. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
35. I know how to use data to motivate others. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
36. I examine student work with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
37. I include data in post-observation conferences with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
38. My job as a principal is "to run a smooth ship". ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
39. I use data when evaluating the quality of my school's instructional program. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
40. Teachers in our school expect decisions in our school to be data-driven. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
41. I use data selectively in my role as instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
42. One performance criterion for evaluating teachers in our school district is how they use data to plan instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
43. Parents in my school expect the principal to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
44. I have completed a university course in the past five years on research methods. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
45. Discussions about data with teachers can result in changes in instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
46. The mission statement and annual goals for my school district are data driven with measurable outcomes. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
47. In my role as principal, I can make a difference with improving student achievement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
48. My district provides incentives for principals to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
49. Parents of students attending my school are proud of our school's success. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
50. Parents of students attending my school are involved in their child's education. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
51. Data should be used to compare schools. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
52. I use research findings as a tool for planning instructional programs. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
53. Effective instructional decision-making in schools should be data driven. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
54. I have attended staff development opportunities in the past three years that focused on the use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
55. My role as a principal enables me to influence teachers' instructional practices. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
56. I feel it is important for principals to use data to articulate the progress of their schools. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
57. I use data to influence parents' perceptions of our school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
58. The use of data is included in teachers' staff development experiences provided by the district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
59. I use data to evaluate the progress my school makes with its goals. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
60. The number of parent volunteers in my school is high. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
61. I read current educational research. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
62. Principals in my district are given staff development opportunities to work together on understanding school and district data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
63. Principals can be a valuable resource to each other with the use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
64. Research can inform instructional practices. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
65. A principal's use of data affects how teachers feel about their job. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
66. Principals in our district are trained on how to use technology to support data analysis. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
67. I possess the skills necessary to use data in my role as instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
68. I rarely use data in my role as instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
69. District and school vision statements should be data driven. ( ) strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
70. Data driven goals are essential for school improvement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
71. Data generated by teachers are as important as school and district data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
72. Data are important tools for monitoring students' academic progress. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
73. I collect data to self-evaluate my effectiveness as a principal. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
74. I make time in my schedule to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
75. I gather classroom observational data daily. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
76. Data are important when evaluating school and district programs. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
77. District leaders acknowledge my use of data. ( ) strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

QUESTIONNAIRE STATEMENTS	CLARITY	DOMAIN
78. I use most of my time as a principal meeting the needs of my community. ( ) strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
79. My time at school is focused on instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
80. I am overwhelmed with data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
81. I use data to help teachers identify problems with instruction. ( ) strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
82. I spend most of my time at school working with student discipline. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
83. Training on the use of data to improve instruction is provided to principals in our district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
84. In my school, I assign specific staff members the responsibility for data analysis. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
85. The number of parent volunteers in my school is moderate. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
86. The number of parent volunteers in my school is low. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
87. I use data to celebrate the successes of our school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
88. I use data to establish clear expectations for student achievement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7
89. My college and work experiences gave me a background with data that enables me to use it a tool with providing instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7

Part II

Directions: **Read and consider the clarity for each item. Give each item a rating of 1 to 3.**

1=very weak   2=somewhat clear, revise   3=clear, leave as written

90.Your age at your last birthday was ___ years.	1 2 3
91.As of September 1 of this school year, I have served as a public school principal for ___ years.	1 2 3
92. The grade levels in my school are ___.	1 2 3
93.My gender is ___ Male ___ Female.	1 2 3
94. The percentage of students in my school who speak a language other than English is: ___ 0-10-%; ___ 11-25%; ___ 25-50%; ___ more than 50%.	1 2 3
95. The percentage of students in my school on free and reduced meals (FARMS) is ___.	1 2 3
96. I served as a teacher for ___ years prior to becoming a principal.	1 2 3
97. The number of students in my school is ___.	1 2 3
98. The percentage of Hispanic and African American students combined attending my school is ___.	1 2 3
99. The number of special education classes in my school is ___.	1 2 3
100.. Student achievement in my school as measured by test data is considered by others to be ___ high ___ average ___ low	1 2 3
101. My school district is best described as (select one): ___ Urban; ___ rural; ___ suburban.	1 2 3
102. The number of years of education I have is ___.	1 2 3

103. Review the types of data that are listed. Rate each type of data according to the frequency

you used this data as an instructional leaders. Use a scale of 1 to 3.

1 = Frequently Used   2 = Sometimes Used   3 = Seldom Used

___ Class Size   ___ Personnel data
___ Data included in psychological reports   ___ Report Card grades
___ FARMS data   ___ Satisfaction Surveys
___ Financial Data   ___ Special education
___ Health Room Visits   assessment referrals

___ Individualized student assessments (word   ___ Standardized Tests recognition,
Informal Reading Assessments,etc.)   ___ Student Attendance
___ Materials Inventory   ___ Student Discipline
___ Mobility Rate of School   ___ Student Retention
___ Observational Data from Classrooms   ___ Suspension/Expulsion
___ Other Schools' Data   ___ Teacher Retention

List other types of data you use frequently that are **not listed.**

_____

_____

_____

_____

Clarity rating for item #103 is: ___

104. Data is generated from different agencies and levels of the school system. Rate the data listed according to the usefulness to you as an instructional leader working to ensure instruction yields high student achievement. The scale is:

1 = Very useful   2 = somewhat useful   3 = Not useful with improving instruction

___ International Data   ___ School Data
___ National Data   ___ Data disaggregated by grade level
___ State Data   ___ Data disaggregated by teacher
___ District Data   ___ Data disaggregated by gender and ethic ___ Individual Student
Data   groups
(Individual test scores, student work, etc.)

Clarity Rating for Item #104 is: ____

105. There are conditions or circumstances that may prevent you from using data in your role as instructional leader. List at least one condition or circumstance but no more than three conditions or circumstance that **prevents or inhibits** your use of data as you work as an instructional leader.
1._____
2. _____
3. _____

Clarity Rating for #105 is ___.

106. There are conditions or circumstances that may motivate, promote, or drive your use of data in your role as instructional leader. List at least one condition or circumstance but no more than three conditions or circumstances that **motivate, promote, or drive** you use of data as an instructional leader.
1. _____
2. _____
3. _____

Clarity Rating for #106 is ___

Part III

Directions: Please answer each question to give your suggestions on the administration and other aspects of development of this instrument.

106. List any items that you consider being racially bias or offensive. Explain why.

_____

_____

107. Overall, how would you rate this survey?

___ Very good   ____ Okay   ___ Not okay

108. What do you think about the content of the survey?

_____

_____

109. What do you think about the proposed format of the instrument?

_____

_____

110. What do you think about the length of the survey? (60 items)

_____

_____

111. What else would you add?

_____

_____

112. What would you omit?

_____

_____

113. Would you respond to this survey? Why or why not?

_____

_____

114. Other thoughts you would like for the researcher to consider are:

_____

_____

APPENDIX E:

DATA FROM PILOT # 1

Pilot #1 Data Summary

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
90.	Your age at your last birthday was ___ .	1			94	Bank	
91.	As of September 1 of this school year, I have served as a public school principal for ___ years.	1			100	Bank	
92.	The grade levels in my school are ___ .	1			94	Bank	
93.	My gender is ___ Male ___ Female.	1			94	Bank	
96.	I served as a teacher for ___ years prior to becoming a principal.	1			100	Bank	
1	I value data as a useful tool for instructional leadership.	2	17	100	94	Bank	
2	The most important role of the principal is instructional leadership.	2	14	82	94	Bank	
13.	Data should be a tool for members of the Board of Education.	2	6	35	82	Eliminate	
20.	Data can be connected directly to classroom practice.	2	8	47	82	Eliminate	
21.	A variety of data sources including test scores should be used to evaluate teachers.	2	10	59	88	Rewrite	39
30.	Data are the primary indicators of a teacher's effectiveness with students.	2	9	53	82	Rewrite	32
32.	Principals should be evaluated by using a variety of data sources.	2	11	65	100	Rewrite	28
34.	When planning school programs, a school inventory of available text and non-print resources is important.	2	6	35	82	Eliminate	
45.	Discussions about data with teachers can result in changes in instruction.	2	8	47	88	Eliminate	
51.	Data should be used to compare schools.	2	11	65	94	Rewrite	19
53.	Effective instructional decision making in schools should be data-driven.	2	8	47	100	Eliminate	

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
56.	I feel it is important for principals to use data to articulate the progress of their schools.	2	9	53	88	Rewrite	17
63.	Principals can be a valuable resource to each other with the use of data.	2	8	47	100	Eliminate	12
64.	Research can inform instructional practices.	2				Eliminate	
65.	A principal's use of data affects how teachers feel about their job.	2	10	59	82	Rewrite	11
69.	District and school vision statements should be data driven.	2	7	41	94	Eliminate	
70.	Data driven goals are essential for school improvement.	2	8	47	100	Eliminate	
71.	Data generated by teachers are as important as school and district data.	2	8	47	88	Eliminate	
72.	Data are important tools for monitoring students' academic progress.	2	11	65	88	Rewrite	7
76.	Data are important when evaluating school and district programs.	2	9	53	88	Rewrite	3
80.	I am overwhelmed with data.	2	10	59	88	Rewrite	2
102.	The number of years of education I have is ___.	2			76	Eliminate (not connected to literature)	
105.	There are conditions that may prevent you from using data. List at lease one condition or circumstance but no more than three that prevent or inhibit your use of data.	2			82	Bank	
106.	There are conditions that may motivate, promote, or drive your use of data in your role as instructional leader. List at least one condition or circumstance that motivates, promotes, or drives you to use data as an instructional leader.	2			82	Bank	
5.	I am knowledgeable of statistical analysis.	3	9	53	82	Rewrite	44
10.	I understand statistical terminology.	3	8	47	76	Eliminate	

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
17.	I am skillful with using technology for data displays.	3	9	53	100	Rewrite	47
23.	I am able to read most data reports.	3	11	65	94	Rewrite	36
24.	I am knowledgeable of how to collect data within my school.	3	10	59	94	Rewrite	35
35.	I know how to use data to motivate others.	3	4	24	100	Rewrite *** (few items in domain)	29
67.	I possess the skills necessary to use data in my role as instructional leader.	3	10	59	100	Rewrite	9
4.	I consider myself to be an instructional leader.	4	9	53	100	Rewrite	45
6.	I see myself as a change agent.	4	12	70	70	Rewrite	55a
12.	My role as principal is to implement programs identified by the district.	4	4	24	88	Eliminate	
22.	The most important thing I do as a principal is to establish harmonious relationship with the teachers in my school	4	11	65	100	Rewrite	37
38.	My job as a principal is to "run a smooth ship".	4	8	47	94	Rewrite	30
47.	In my role as principal, I can make a difference with improving student achievement.	4	9	53	94	Rewrite	50
55.	My role as a principal enables me to influence teachers' instructional practices.	4	9	53	100	Rewrite	55
79.	My time at school is focused on instructional leadership.	4	15	88	88	Bank	
89.	My college and work experiences gave me a background with data that enables me to use it as a tool with providing instructional leadership.	4	2	12	76	Eliminate	
7.	I have read a professional book in the past year that supported the use of data as a tool for instructional leadership.	5	11	65	100	Rewrite	43
19.	I read a professional articles in the past year in which the author(s) proposed the use of data as a tool for instructional leadership.	5	10	59	100	Rewrite	40
25.	I attended a professional conference in the past three years on the use of data to improve instruction.	5	14	82	100	Bank	

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
44.	I have completed a university course in the past five years on research methods.	5	10	59	100	Rewrite	21
54.	I have attended staff development opportunities in the past three years that focused on the use of data.	5	10	59	100	Rewrite	18
61.	I read current educational research.	5				Eliminate	
3	The job description for a principal employed by my district includes the use of data.	6	10	59	35	Rewrite	46
8.	District leaders of my school district model the use of data.	6	12	70	76	Rewrite	41
9.	My school district expects principals to use data.	6	13	76	88	Rewrite	55b
11.	My district provides a computer for my use .	6	16	94	100	Bank	
14.	A job description of central office staff working in my school district is to assist principals with data.	6	13	75	100	Rewrite	56
15.	Data are provided to principals by my school district.	6	14	82	76	Rewrite	57
26.	My supervisor monitors my use of data.	6	13	76	88	Rewrite	34 42
28.	A performance criterion for principal evaluation in my district is the use of data.	6	13	76	94	Rewrite	33
42.	One performance criterion for evaluating teachers in our school district is how they use data to plan instruction.	6	11	65	88	Rewrite	24
46.	The mission statement and annual goals for my school district are data driven with measurable outcomes.	6	10	59	94	Rewrite	20
48.	My district provides incentives for principals to use data.	6	15	88	100	Bank	
58.	The use of data is included in teachers' staff development experiences provided by the district.	6	8	47	82	Eliminate	
62.	Principals in my district are given staff development opportunities to work together on understanding school and district data.	6	10	59	94	Rewrite	13

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
66.	Principals in our district are trained on how to use technology to support data analysis.	6	10	59	100	Rewrite	10
77.	District leaders acknowledge my use of data.	6	5	29	94	Eliminate	
83.	Training on the use of data to improve instruction is provided to principals in our district.	6	11	65	94	Rewrite	1
101.	My school district is best described as (select one): ___ Urban; ___ rural; ___ suburban	6			100	Bank	
16.	Teachers in my school possess the knowledge to use data.	7	5	29	94	Eliminate	
27.	When solving problems in my school, teachers seek data.	7	9	53	88	Rewrite	48
29.	Teachers in my school view data as a tool for improving student achievement.	7	9	53	100	Rewrite	49
33.	The mobility rate of my school is high.	7	11	65	100	Rewrite	27
40.	Teachers in our school expect decision in our school to be data-driven.	7	6	35	94	Eliminate	
43.	Parents in my school expect the principal to use data.	7	11	65	94	Rewrite	23
49.	Parents of students attending my school are proud of our school's success	7	15	88	100	Bank	
50.	Parents of students attending my school are involved in their child's education.	7	14	82	100	Bank	
60.	The number of parent volunteers in my school is high.	7	11	65	82	Rewrite	14
78.	I use most of my time as a principal meeting the needs of my community.	7	3	18	76	Eliminate	
82.	I spend most of my time at school working with student discipline.	7	1	6	70	Eliminate	
84.	In my school, I assign specific staff members the responsibility for data analysis.	7	4	24	88	Eliminate	
85.	The number of parent volunteers in my school is moderate.	7	15	84	88	Bank	
86.	The number of parent volunteers in my school is low.	7	15	84	94	Bank	
94.	The percentage of students in my school who speak a language other than English is: ___ 1-10%; ___ 11-25%; ___ 25-50%; ___ more than 50%.	7			88	Bank	

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
95.	The percentage of student in my school on free and reduced meals (FARMS) is____	7			100	Bank	
97.	The number of students in my school is ___.	7			88	Bank	
98.	The percentage of Hispanic and African American students combined attending my school is ___.	7			76	Eliminate (Comments on pilot)	
99.	The number of special education classes in my school is ___.	7.			94	Bank	
100.	Student achievement in my school as measured by test data is considered by others to be ___ high ___ average ___ low.	7			88	Bank	
18.	I share data with teachers.	8			100	Re-pilot	38
31.	I frequently use data as an instructional leader.	8			100	Re-pilot	31
36.	I examine student work with teachers.	8			100	Re-pilot	26
37.	I include data in post-observation conferences with teachers.	8			82	Re-pilot	25
39.	I use data when evaluating the quality of my school's instructional program.	8			100	Re-pilot	15
41.	I use data selectively in my role as an instructional leader.	8			100	Re-pilot	22
52.	I use research findings as a tool for planning instructional programs.	8			94	Eliminate	
59.	I use data to evaluate the progress my school makes with its goals.	8			94	Re-pilot	15
68.	I rarely use data in my role as instructional leader.	8			94	Re-pilot	8
73.	I collect data to self-evaluate my effectiveness as a principal.	8			94	Re-pilot	6
74.	I make time in my schedule to use data.	8			94	Re-pilot	5
75.	I gather classroom observational data daily.	8				Re-pilot	4
81.	I use data to help teachers identify problems with instruction.	8			82	Bank	
87.	I use data to celebrate the successes of our school.	8			94	Re-pilot	53
88.	I use data to establish clear expectations for student achievement.	8			94	Re-pilot	52

Item No.	Item	Domain	No. Match Domain	% Match Domain	Clarity Rating of 3 (%)	Decision For Item	New No.
103.	Review the types of data and Rate each item according to the frequency you use this data as an instructional leader.	8			82	Bank	
104.	Data is generated from different agencies and levels of the school system. Rate the data listed according to the usefulness to you an instructional leader working to ensure instruction yields high student achievement.	8			82	Bank	
57.	I use data to influence parents' perceptions of our school.	8			94	Re-pilot	6

Item Summary from Pilot #1 (106 items) (89 Likert Scale: 17 open-ended)

Items for Bank: 26

Items to be eliminated: 24

Items to be Re-written: 41

Items That Measure Principals' Use of Data Re-piloted: 16

APPENDIX F:

CONTENT VALIDATION PILOT #2

Use of Data by Elementary Principals
Pilot Survey #2

Definition: The term "data" is defined as any evidence or information that is useful for planning or evaluating instructional programs and with measuring, describing, or monitoring student progress.

Directions:
1. **Read each item.**
2. **Rate each item for clarity using a scale of 1-3.**
   1= Item is unclear and should be omitted.
   2= Item is somewhat clear and should be revised.
   3= Items is clear and should be included in final survey.
3. **Use the Domain Description to indicate for each item the domain that matches the item.**

QUESTIONNAIRE STATMENTS	CLARITY	DOMAIN MATCH
1. Training on the use of data to improve instruction is provided to principals in our school district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
2. The amount of data I receive is overwhelming. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
3. School data are important indicators of the effectiveness of the school's instructional program. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
4. I gather data from classroom observations daily. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
5. I make time in my schedule to use data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
6. I collect data to self-evaluate my effectiveness of a principal. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
7. Data are useful with identifying students who are making academic progress. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
8. I rarely use data in my role as instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
9. I am skillful with analyzing data in my role as an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8

QUESTIONNAIRE STATMENTS	CLARITY	DOMAIN MATCH
10. Our school district trains principals about ways to display data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
11. The way teachers feel about their jobs can be influenced by how a principal uses data with them. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
12. Principals can help each other with the use of data in instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
13. Our school district provides opportunities for principals to work together to understand school and district data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
14. There are enough parent volunteers in my school to provide the support that is needed. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
15. I use data to evaluate the progress my school is making with its goals. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
16. I use data to influence parents' perceptions of our school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
17. Data displays are powerful tools for principals to show others the progress the school is making with student achievement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
18. In the past three years, I have received staff development on the use of data as a tool for instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
19. Comparing schools by comparing school data enhances school improvement efforts. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
20. Our school district set goals for student achievement that describe the progress that is planned. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
21. I have completed a course offered by a college or university in the past five years that helped me learn strategies for using data as an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
22. As an instructional leader, I use data selectively to accomplish specific tasks. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8

QUESTIONNAIRE STATMENTS	CLARITY	DOMAIN MATCH
23. Parents in my school expect the principal to use data to demonstrate student progress. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
24. Teachers in our school district are evaluated on how they use data to plan instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
25. I include data in post-observation conferences with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
26. I examine student work with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
27. The mobility rate of my student population makes it difficult for teachers to ensure student progress. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
28. The supervisor of a principal should use a variety of data sources to evaluate the performance of the principal. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
29. I am skillful with using data to motivate others. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
30. The best description of my work as a principal is that I "run a smooth ship". ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
31. I use data frequently as an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
32. Data from district assessments is an important indicator of a teacher's effectiveness with instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
33. Principals employed by our school district are evaluated on their use of data in providing instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
34. My supervisor monitors my use of data by observing me when I provide data presentations. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
35. I am knowledgeable of ways to collect data within my school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
36. I am able to read most data reports. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
37. Establishing harmonious relationships with the teachers in my school are a priority for me as an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
38. I share data with teachers. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8

QUESTIONNAIRE STATMENTS	CLARITY	DOMAIN MATCH
39. Teachers should be evaluated by using a variety of data sources including standardized test scores. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
40. My professional reading in the past year has included professional articles in which the author(s) proposed the use of data as an effective tool for instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
41. District leaders such as supervisors use data when they plan presentations for principals. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
42. My supervisor monitors my use of data in instructional leadership by having me prepare periodic reports that incorporate data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
43. My professional reading in the past year has included a book on the use of data for effective instructional leadership. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
44. I am skillful with using statistics to interpret school data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
45. In my job as principal, I consider myself to be an instructional leader. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
46. Our district's job description for principals includes the use of data to improve instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
47. I have the skills with technology that enable me to create data displays. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
48. Teachers in my school seek data when solving problems. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
49. Teachers in my school see data as assisting them with improving instruction for students. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
50. The quality of leadership I provide makes a difference in student achievement. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
51. My understanding of the meaning of data generated from our district's assessment is a barrier to my use of data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1 2 3	1 2 3 4 5 6 7 8
52. I use data to establish clear goals for student achievement in my school.	1 2 3	1 2 3 4 5 6 7 8

QUESTIONNAIRE STATMENTS	CLARITY	DOMAIN MATCH
53. I use data to celebrate the successes of my school. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8
54. As I work as a principal, I spend more time providing instructional leadership than I do as a manager. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8
55. As a principal, I see myself leading others to make whatever changes are needed to ensure improved instruction. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8
56. An expectation of my school district is for principals to use data to improve instructional programs. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8
57. Central office staff working in my school district assists principals with using data. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8
58. Data reports on student performance are provided to principals by our school district. ( ) Strongly disagree ( ) Disagree ( ) Agree ( ) Strongly Agree	1　2　3	1　2　3　4　5　6　7　8

Part II

Directions: Please answer each question to give your suggestion on the administration and other aspects of the development of this instrument.

59. Overall, how would you rather this survey?

　　　___ Excellent　　___ Good　　___ Okay　　__Not Okay

60. What do you think about the content of the survey?

_____

_____

61. What do you think about the proposed format of the instrument?

_____

_____

62. What else would you add or eliminate from this survey?

_____

_____

63. Would you respond to this survey? Why or why not?

_____

_____

64. Other suggestions or thoughts you would like for the researcher to consider are:

_____

APPENDIX G:

DATA FROM PILOT #2.

Analysis of Pilot #2					
Domain	Item # P2	Item # P1	Clarity P2 N=21	Domain Match P2 N=21	Decision Considering P1 and P2
2	2	80	67	67	Bank--weak
2	3	76	86	38	eliminate
2	7.	72	57	10	eliminate
2	11.	65	76	29	eliminate
2	12	63	76	29	eliminate
2	17.	56	67	29	eliminate
2	19.	51	52	14	eliminate
2	28.	32	86	24	If need us P1
2	32.	30	80	19	eliminate
2	39.	21	80	5	eliminate
3	9	67	86	48	eliminate
3	29.	35	86	33	eliminate
3	35.	24	80	76	Bank
3	36.	23	80	80	Bank
3	44.	5	80	62	Bank--P2
3	47.	17	86	90	Bank
3	51.	new	71	43	eliminate
4	30.	38	67	62	Bank--weak
4	37.	22	71	29	Bank--Use P1
4	45.	4	90	62	Bank-P2
4	50.	47	86	52	eliminate
4	54.	new	90	76	Bank
4	55.	6	80	67	Bank
5	18.	54	90	71	Bank
5	21.	44	90	90	Bank
5	40.	19	80	76	Bank --P2
5	43.	7	90	86	Bank--P2
6	1	83	76	0	If need us P1

			Clarity P2 N=21	Domain Match P2 N=21	
Domain	Item # P2	Item # P1	Clarity P2 N=21	Domain Match P2 N=21	Decision Considering P1 and P2
6	10	66	71	62	eliminate
6	13	62	90	67	Bank--Use P2
6	20.	46	557	90	eliminate
6	24.	42	76	52	Bank--weak--Use P1
6	33.	28	80	62	Bank
6	34.	26	57	57	eliminate
6	41.	8	76	80	Bank
6	42.	26	86	57	Bank--If need use P1
6	46.	3	90	76	Bank--P2
6	55b.	9	90	95	Bank
6	56.	14	86	95	Bank
6	57.	15	95	95	Bank
7	14.	60	90	80	Bank
7	23.	43	90	57	eliminate
7	27.	33	62	52	eliminate
7	48.	27	80	86	Bank
7	49,	29	80	86	Bank
8	4.	75	90	62	Bank
8	5.	74	86	78	Bank
8	6.	73	67	29	eliminate
8	8.	68	76	33	eliminate
8	15.	59	90	80	Bank
8	16.	57	86	67	Bank
8	22.	41	62	43	Weak Outcome Use P1
8	25.	37	86	62	Bank --weak
8	26.	36	67	48	eliminate
8	31.	31	80	40	Outcome-weak
8	38.	18	86	48	Outcome--weak
8	52.	88	90	55	
8	53.	87	86	52	Outcome--weak

APPENDIX H:

REWRITE OF ITEMS FROM PILOT #1.

Domain	Item # P2	Wording of Item P2	Item # P1	Wording of Item P1	Decision Considering P1 and P2
Rewrite of Items from Pilot #1					
2	2	The amount of data I receive is overwhelming	80	I am overwhelmed with data.	Bank--weak
2	3	School data are important indicators of the effectiveness of the school program.	76	Data are important when evaluating school and district programs.	eliminate
2	7.	Data are useful with identifying students who are making academic progress.	72	Data are important tools for monitoring students' academic progress.	eliminate
2	11.	The way teachers feel about their jobs can be influences by how a principal uses data with them.	65	A principals' use of data affect how teachers feel about their job.	eliminate
2	12	Principals can help each other with the use of data in instructional leadership.	63	Principals can be a valuable resource to each other with the use of data.	eliminate
2	17.	Data displays are powerful tools for principals to show others the progress the school is making with student achievement.	56	I feel it is important for principals to use data to articulate the progress of their schools.	eliminate
2	19.	Comparing school by comparing school data enhances school improvement efforts.	51	Data should be used to compare schools.	eliminate
2	28.	The supervisor of a principal should use a variety of data sources to evaluate the performance of the principal.	32	Principals should be evaluated by using a variety of data sources.	If need us P1
2	32.	Data from district assessment is an important indicator of a teacher's effectiveness with instruction.	30	Data are the primary indicators of a teacher's effectiveness with students.	eliminate
2	39.	Teachers should be evaluated by using a variety of data sources including standardized tests.	21	A variety of data sources including test scores should be used to evaluate teachers.	eliminate
3	9	I am skillful with analyzing data in my role as an instructional leader.	67	I possess the skills necessary to use data in my role as instructional leader.	eliminate
3	29.	I am skillful with using data to motivate others.	35	I know how to use data to motivate others.	eliminate
3	35.	I am knowledgeable of ways to collect data within my school.	24	I am knowledgeable of how to collect data within my school.	Bank
3	36.	I am able to read most data reports.	23	I am able to read most data reports.	Bank
3	44.	I am skillful with using statistics to interpret school data.	5	I am knowledgeable of statistical analysis.	Bank--P2

		Rewrite of Items from Pilot #1			
Domain	Item # P2	Wording of Item P2	Item # P1	Wording of Item P1	Decision Considering P1 and P2
3	47.	I have the skills with technology that enable me to create data displays.	17	I am skillful with using technology for data displays.	Bank
3	51.	My understanding of data generated from our district's assessment is a barrier to my use of data.	new		eliminate
4	30.	The best description of my work as a principal is that "I run a smooth ship."	38	My job as principal is to "run a smooth ship".	Bank--weak
4	37.	Establishing harmonious relationships with the teachers in my school are a priority for me as an instructional leader.	22	The most important thing I do as a principal is to establish harmonious relationships with the teachers in my school.	Bank--Use P1
4	45.	In my job as principal, I consider myself to be an instructional leader.	4	I consider myself to be an instructional leader.	Bank-P2
4	50.	The quality of leadership I provides makes a difference in student achievement.	47	In my role as principal, I can make a difference with improving student achievement.	eliminate
4	54.	As I work as a principal, I spend more time providing instructional leadership than I do as a manager.	new		Bank
4	55.	As principal, I see myself leading others to make whatever changes are needed to ensure improved instruction.	6	I see myself as a change agent.	Bank
5	18.	In the past three years, I have received staff development on the use of data as a tool for instructional leadership.	54	I have attended staff development opportunities in the past three years that focused on the use of data.	Bank
5	21.	I completed a course offered by a college or university in the past five years that helped me learn strategies for using data as an instructional leader.	44	I have completed a course in the past five years on research methods.	Bank
5	40.	My professional reading in the past year has included professional articles in which the author(s) proposed the use of data an effective tool for instructional leadership.	19	I read a professional article in the past year in which the author(s) proposed the use of data as a tool for instructional leadership.	Bank --P2
5	43.	My professional reading in the past year has included a book on the use of data for effective instructional leadership.	7	I have read a professional book in the past year that supported the use of data as a tool for instructional leadership.	Bank--P2
6	1	Training on the use of data to improve instruction is provided to principals in our school district.	83	Training on the use of data to improve instruction is provided to principals in our school district.	If need us P1

		Rewrite of Items from Pilot #1			
Domain	Item # P2	Wording of Item P2	Item # P1	Wording of Item P1	Decision Considering P1 and P2
6	10	Our school district trains principals about ways to display data.	66	Principals in our district are trained on how to use technology to support data analysis.	eliminate
6	13	Our school district provides opportunities for principals to work together to understand school and district data.	62	Principals in my district are given staff development opportunities to work together on understanding school and district data.	Bank--Use P2
6	20.	Our school district sets goals for student achievement that describes the standard each school should meet.	46	The mission statement and annual goals for my school district are data driven with measurable outcomes.	eliminate
6	24.	Teachers in our school district are evaluated on how they use data to plan instruction.	42	One performance criteria for evaluating teachers in our school district is how they use data to plan instruction.	Bank--weak--Use P1
6	33.	Principals employed by our school district are evaluated on their use of data in providing instructional leadership.	28	A performance criterion for principal evaluation in my district is the use of data.	Bank
6	34.	My supervisor monitors my use of data by observing me when I provide data presentations.	26	My supervisor monitors my use of data.	eliminate
6	41.	District leaders such as supervisors use data when the plan presentation for principals.	8	District leaders of my school district model the use of data.	Bank
6	42.	My supervisor monitors my use of data in instructional leadership by having me prepare periodic reports that incorporate data.	26	My supervisor monitors my use of data.	Bank--If need use P1
6	46.	Our district's job description for principals includes the use of data to improve instruction.	3	The job description of a principal employed by my district includes the use of data.	Bank--P2
6	55b.	An expectation of my school district is for principals to use data to improve instructional programs.	9	My school district expects principals to se data.	Bank
6	56.	Central office staff working in my school district assists principals with using data.	14	A job requirement of central office staff working in my school district is to assist principals with data.	Bank
6	57.	Data reports on student performance are provided to principals by our school district.	15	Data are provided to principals by our school district.	Bank
7	14.	There are enough parent volunteers in my school to provide the support that is needed.	60	The number of parent volunteers in my school is high.	Bank
7	23.	Parents in my school expect the principal to use data to demonstrate student progress.	43	Parents in my school expect the principal to use data.	eliminate

		Rewrite of Items from Pilot #1			
Domain	Item # P2	Wording of Item P2	Item # P1	Wording of Item P1	Decision Considering P1 and P2
7	27.	The mobility rate of my student population makes it difficult for teachers to ensure student progress.	33	The mobility rate of my school is high.	eliminate
7	48.	Teachers in my school seek data when solving problems.	27	When solving problems in my school, teachers seek data.	Bank
7	49,	Teachers in my school see data as assisting them with improving instruction for students.	29	Teachers in my school view data as a tool for improving student achievement.	Bank
8	4.	I gather data from classroom observations daily.	75	I gather classroom observational data daily.	Bank
8	5.	I make time in my schedule to use data.	74	I make time in my schedule to use data.	Bank
8	6.	I collect data to self-evaluate my effectiveness as a principal.	73	I collect data to self-evaluate my effectiveness as a principal.	eliminate
8	8.	I rarely use data in my role as instructional leader.	68	I rarely use data in my role as an instructional leader.	eliminate
8	15.	I use data to evaluate the progress my school is making with its goals.	59	I use data to evaluate the progress my school makes with its goals.	Bank
8	16.	I use data to influence parents' perceptions of our school.	57	I use data to influence parents' perceptions of our school.	Bank
8	22.	As an instructional leader, I use data selectively to accomplish specific tasks.	41	I use data selectively in my role as instructional leader.	Weak Outcome Use P1
8	25.	I include data in post-observation conferences with teachers.	37	I include data in post-observations conferences with teachers.	Bank --weak
8	26.	I examine student work with teachers.	36	I examine student work with teachers.	eliminate
8	31.	I use data frequently as an instructional leader.	31	I frequently use data an instructional leader.	Outcome-weak
8	38.	I share data with teachers.	18	I share data with teachers.	Outcome--weak
8	52.	I use data to establish clear goals for student achievement in our school.	88	I use data to establish clear expectations for student achievement.	
8	53.	I use data to celebrate the successes of my school.	87	I use data to celebrate the successes at school.	Outcome--weak

APPENDIX I:

OPEN-ENDED RESPONSE SUMMARY OF INHIBITORS

Survey Responses Item 49

Number of Responses: 143

There are Conditions or circumstances that may prevent you from using data in your role as instructional leader. List at least one but no more than three conditions or circumstances that prevent or inhibit your use of data.

Domain I—Principals' Use of Data
Appropriate assessments that create data
Ease to acquire; computation; interpretation
Time to work professionally or collegially with staff
Result comparing year to year
When a student can be identified
Appropriate assessments that create data
Ease to acquire; computation; interpretation
Time to work professionally or collegially with staff
Result comparing year to year

Domain II—Principals' Attitudes Toward Data, Instructional Leadership, and The Use of Data by Others
Perceptions that data is impersonal and is another way of finger pointing
Irrelevant information, confusing information
Collection of paperwork due at state level ;so many jobs
Competition for time
So many jobs
Competition for time
Lack of enough disaggregated data to pinpoint specific problems and concerns
Managing two buildings—no time
Timely return of test results
Not having enough reliable data.
Many mandates—just managing daily routine takes most of the day
No such conditions exist
Too small a group of participants
Daily management issues; teacher support
None but it is hard to devote time to studying school data
Time to analyze data appropriately;
Data that is not meaningful for instructional change
Amount of data
Time to study it effectively

We are constantly assessing our students. Therefore, we do not have adequate time to analyze and disseminate data before the next assessment is administered.
Insufficient or inadequate data
Finding time to collect and study data
Format data is presented is poorly chosen.
Manipulation of data; use of data to create competitiveness
I can't think of any. Perhaps the imprecise nature of data and attitudes towards school.
Teachers' need for subjectivity
Appropriate data (many sources which to use and for what purposes)
Its availability—some scores arrive the following school year
Getting teachers to use it more.
Faculty understanding of data
Shortage of usable data in grades k and 1
Long detailed process—no quick fix
Access to data in a timely fashion
Newness of data—at a baseline level with new assessments
Too much data to sort through
Too difficult to retrieve
Too much data
When comparing one class/grade/school to another
Not provided in a timely manner
Sifting through data
Paperwork/reports
Ways to collect useful data; manpower to compile data
Some data reports for standardized test are not user friendly
I am principal of three buildings.
The job is very complex.
Lack of current year data for 1st-5th grades

Domain III—Principals' Self Perceptions of Themselves as Instructional Leaders
There is no circumstance that keeps me from using data. It's a matter of priority, training, and support from the district office.
No other administrative support (I have no vice-principal.)
Management responsibilities
Sometimes the " managing" of the positions get in the way of "leading".
Too many other managerial responsibilities; no assistant principal; no incentive above self
No motivation to do so
People not willing to provide the data requested.
a great deal of time is spent on special education (24% of students) Their scores often must be considered individually.
We don't test same students on yearly basis so we compare apples to oranges: Data not disaggregated.
Too busy with management duties; not enough staff development time to share with teachers
Sifting through data
Not receiving the data in a timely manner

Domain IV—Principals' Competencies with Data
Lack of knowledge/skills
Statistical knowledge
Knowledge of how to collect data in classrooms; knowledge of which data is important
Lack of training
Lack of organization; too many managerial tasks
Lack of understanding
Time management
Lack of knowledge
My knowledge or proficiency of using computer data and spreadsheets
My own skills with technology but only inhibits does not prevent use-I get help as needed
My understanding of how to use the data to solve problem
My own training
Only my own limitations
Lack of knowing how to use data effectively
My skills with technology are limited

Domain V—Principals' Professional Development Opportunities
Lack of training on my part
Training

Domain VI—Characteristics of District for which Principals Work
Collection of paperwork due at state level
Our district management system for standards/assessment isn't available at this time.
Confidentiality laws
Comparing schools
District emphasis on non-instructional issues
Teacher contracts prohibit use of student data to be accumulated or used for evaluations
Gr 4 students do not take ITBS (all other K-7 take it)
Lack of technical support to generate varied reports
Privacy issues of both students and educators
Misinterpretation of data by public
Late notice/reports of state testing
Emphasis in district to expect management (vs. instruction) from administrators
I'm not satisfied that current data gathering is consistent with reality; tends to be misused
Resources
Tests; technology (an assessment system linked to provide instant data)
Central office is not sup portative; difficult to obtain data from central office
We are a small district which lacks personnel.
Late notice/reports of state testing
No district subscription to educational research service
In this private school, there is no restriction. There were many when I was a principal in LAUSD.
Teacher involvement; teacher union
Not enough detailed state reports; not enough time; no assistant principal
No central data is available other than standardized test scores and the Maryland Report

A school system-wide system for managing and tracking student achievement data is not yet in place. All data must be manually entered at local school. Each school uses a different system.

Poor system

We do not have access to a computer management program that generates data.

When a higher supervisor doesn't support the changes

District help

Domain VII—Characteristics of School in which Principals Work

Time to work with staff to help them understand the data.

Parent or teacher reluctance to try to understand data

This year has been different from years past in that we have many kids with several behavior problems.

We are in a new school.

Changes in student population due to a significant change in student population

Demographics of population

Fast access to test data and individual scores due to outdated student database programs

A transient population skews the statistics; too often the media and central administration will try to compare last year's scores with this year's scores and never seem to consider or note that they are talking about different populations. For example, they try to compare last year's fourth grade students to this year's fourth grade students instead of last year third to this year's fourth.

Student turnover

Other

Time

Time

Time needed to collect

Time!

Money to purchase assessment materials and software purchase

Time

Time

Lack of time

Limited time

Time

Time

Lack of time to study

Time

Time to collect accurate data

Time

Lack of time

Time

Time

TIME!

Time to study it effectively

Time

Time
Time
Time
Time
Time for the task
Time in the day
Time
Time to analyze
Validity of curriculum as compared to assessment tool scope
Time and demand for my time
Time for collection
Time
Time to study results
Limited data re: instruction at K-2 grade
Time—lack of …
Consistence Time in using data
Time to learn and use effectively
Not enough time to analyze
Not enough time
Time available to manipulate it#349 FCAT tests—state tests
Time restraints
Time
Cost; time
Time
Time
Time
Special education policies sometime interfere with decisions concerning students.
Time
Lack of time

APPENDIX J:

OPEN-ENDED SUMMARY OF MOTIVATORS

Survey Responses—Item 50
Number of Responses: 164

Q 50
There are conditions or circumstances that may motivate, promote, or drive your use of data in your role of instructional leader. List at least one condition but no more than three conditions that motivate, promote, or drive your use of data.

Domain I—Principals' Use of Data
When data driven decisions result in provision/resources to improve learning.
Consistent achievement; relevant data; use by all staff
Opportunities by BOCES; encouragement by superintendent
Compare and evaluate student achievement
Best ways to show student achievement and growth
I want evidence to make changes to improve instruction.
Student achievement
Performance standards; school report card
Improved test scores
Evaluation of goals/programs; Standards for improvement by state requirements
From data reported realizing a direct tie between initiatives and expected results drives its use.
Improve MCAS scores; improve achievement
Continued academic success for students
Monetary bonus; accreditation; community relations
Link to improved instruction; best practices
Sound decision making; Baldrigi approach to school improvement
Strengths and/or weaknesses
Special needs students; good to check student growth
High achievement levels
Improved student learning
Low test scores on state test
School performances; to see students and school achieve and succeed
Beginning of new program
Instruction: assessment; reports
Individualized data; teacher and parents gathered data
Competition; public opinion
It causes teacher to accept change
In a high need school. I look for comparative data from like schools.
We use a lot of behavioral data; We are motivated by out students' progress in reading as shown
     by our monthly data
Student growth; instructional improvement

To implement change, you must education your parents and your Board by using data to support your position.
Introduction of proposal or change
When students and teachers can see benefits of using data to improve learning and instruction
Planning strategies fro student achievement; data is essential
Educating teachers about their class; publishing test results
Need to share mastery test results
Feedback for teachers; feedback for students; feedback for parents
It's exciting to chart growth.
State assessments; our efforts to meet needs of children without classifying them
Student learning; student learning; student learning
Incentive grants; Read To Succeed
Foster changes in instructional practice
The pursuit of excellence; state accreditation
Able to obtain new resources for the school
Continuous improvement
Success of students, staff, and administration
NCA accreditation—school improvement model
Data is excellent to use for comparative analysis
Students are improving on standardized EOG's based on more effective instruction which is
        developed according to data analysis
Desire to meet each student's individual needs
Assessment
Student growth
Accountability for student progress
Improved test scores; improve learning; improve
Seeing success
Teachers and parents support the use; utilized the analysis and encourage growth
Helps teachers to share and collaborate; monitor progress; share teachers' strengths and eliminate weaknesses
Facts; comparison; objectivity
0pportunities to further my own knowledge
Test scores improvement; students' strengths and weaknesses; basic skills; Title I; parent information
Missouri Reading Initiative; grant verification
SACS—developing a plan to improve mastery
School improvement; school accountability; program success
I have to use data to stay current and up-to-date. It's a must!
Reference point; factual support; ability to plot growth/needs/etc.
My scores are very high—good public relations tool
Student achievement; clinical supervision
To help students learn
Curriculum revision
Substantiate the good work that teachers are doing to have all students meet standards
Rating school's success on state assessment; value of certain programs
Scoring kids as effectively as possible requires data examination

SOL results
Data used for reading improvements as well as math
Improved student achievement; setting instructional goals; assessment of program
Improved student achievement; setting instructional goals; assessment of program
Collaboration with others; can see results-positive; professional development to educate staff
It gives clear direction or drives instruction
Improve instruction therefore improving student learning
Excellent guidance from associate superintendent
Student achievement
To improve instruction when you know students can succeed more; To make teachers differ their
        instruction with at-risk students
Overall school improvement
Helps enrollment; good PR
Using data is part of good planning and continuous assessment of programs, progress, and
performance
Improve instructional practices
NCA Standards; school improvement: MEAP competition
Good performance feedback
To promote improved instruction; to meet the needs of students
State accountability; district expectations for school improvement; personal dedication to student
        achievement
Need data to set and refine goals
Successes on Ohio's fourth grade
North Central School accreditation process; continuous improvement
We are an isolated (rural) district: good data tells me what others are doing
Show progress; Defend programs
Test scores
State assessment tests
Progress shown by students in past 2 years since I became principal
Determine who qualifies for remediation
Added financial rewards for my school doing well
Professional development opportunities; need to meet standards
Accountability (public and district)
Added financial rewards for my school doing well
Professional development opportunities; need to meet standards
Accountability (public and district)
Required school improvement plan

Domain II—Principals' Attitudes
Teachers like the information for focusing instruction and interaction.
Belief that data can be helpful for instructional decisions
Self-motivated; I achieve in spite of hindering of central office and business office
If I could see how the data can be used to bring about improved student achievement.
Personal desire and commitment
Helpful in making decisions
Staying in top 5% of schools in state; seeing test scores in newspaper; keeping curriculum viable

for students
Financial incentives
Force
I enjoy making graphs: I enjoy presenting data in graphic form; I feel it helps to motivate
    because we see progress
Elimination of comparison of schools
Belief in accountability, district focus, and I am a team player.
Any competent leader will use data to improve teaching and learning; use of data is part of
    principal evaluation
Excellence in education

Domain III—Principals' Self Perceptions
My personal high expectations and my staff and students
Self-motivation—it's a way for me to determine how successful I am.
My belief that data can help focus energy and effort.
Personal interest
Desire for students to be successful
Intrinsic desire to see student's successes
Professional readings

Domain IV Principals' Competencies—
No responses grouped into this domain.

Domain V—Principals' Professional Development Opportunities
No responses grouped into this domain.

Domain VI-- Characteristics of School District
Accountability
Parents; state; Board
School improvement plans at state level; accountability everywhere
Accountability; to show growth; to set goals
District expectations
District's focus on data; new superintendent is data-driven
PL. 221
Assistance from the state of Vermont on the use of data to improve instruction
District expectations
State and district published assessment data
Mandates from district office; pressure from state and federal agencies
State reports;
WCA; benchmarks for district
State regulations
Indianan Public Law 221 mandates data use with "high stakes" achievement tests
New state/federal standards; decline in any area
SOL results
District expectations to use data to set goals for student learning
Indiana has a new law PL 221 that requires principals to be accountable for student progress

Accountability
NCA reporting
District emphasis on data; state assessment program; district's 90% reading goal
Public demanding accountability
Our school results are publicized and compared to those of other schools.
An easy to use system of assessment that is technologically connected to provide instant
    data on groups and individuals.
Our district employs a company to aggregate and disaggregate our test data and compiles reports
    that help a lot.
Good computer
Money incentives; visionary leadership at central office; evaluation based on using data
State and national test results that compare our school to others WASL; ITBS: ITED
District expectations in developing school goals
GA House Bill 1187 (A= Educational Reform Act) Grading of schools using test data
Supervisor/superintendent utilizes data for system's five year plan) updated annually)
Superintendent's initiative
SAT testing
Principal evaluation; SOL test results
Support of superintendent and central office; specific literacy goal for district for past two years
Connecticut Mastery Tests; Rubrics
Administrative assistant provides much support
State proficiency tests; state report card on school achievement
State department expectations
District goals to meet standards; state goals to meet standards
Accountability
State tests
Publishing standardized test scores in the newspaper motivates teachers to prepare their students
    for the SATs.

Domain VII –Characteristics of School
Parents have high expectations and expect our students to perform at or above our comparison
group
Parent awareness; teacher awareness
Our school is very technologically rich

APPENDIX K:

QUESTIONNAIRE RESPONSES BY ITEM WITH DESCRIPTIVE DATA

D: Domain		I: Question Number		M: Median				
SD: strongly disagree		D: disagree		A: agree			SA: strongly agree	
D	**I**	**question**	**#**	**M**	**SD**	**D**	**A**	**SA**
		Use of Data						
1	1	I use data to evaluate the progress my school is making toward achieving its goals.	226	4	4.0	0.4	36.3	59.3
1	2	I make time in my schedule to use data.	221	3	1.4	5.4	57.9	35.3
1	3	I gather data from classroom observations often.	222	3	1.4	10.4	60.8	27.5
1	4	I use data in post-observation conferences with teachers.	223	3	0.9	13.0	62.3	23.8
1	5	I use data to influence parent perception of our school.	226	3	0.4	5.8	61.5	32.3
1	6	I use data to establish clear goals for student achievement.	225	4	0.9	2.7	43.6	52.9
1		summary		3	1.5	6.3	53.7	38.6
		Personal Attitude						
2	7	I value data as a useful tool for instructional leadership.	226	3	0.4	1.3	48.2	50.0
2	10	Principals should be evaluated by using a variety of data sources.	225	3	3.1	11.1	54.7	31.1
2	11	Data should be used to compare schools.	222	2	18.0	46.4	31.5	4.1
2	12	Data are important for monitoring student academic progress.	223	3	0.4	0.9	57.4	41.3
2		summary		3	5.5	14.8	48.0	31.7
2	8	*The most important role of the principal is instructional leadership.*	*225*	*4*	*1.3*	*4.0*	*34.2*	*60.4*
2	9	*The amount of data I receive is overwhelming.*	*223*	*3*	*2.7*	*33.6*	*35.9*	*27.8*

D	I	question	#	M	SD	D	A	SA
D: Domain		I: Question Number		M: Median				
SD: strongly disagree		D: disagree		A: agree		SA: strongly agree		
		Competencies						
3	13	I am knowledgeable of ways to collect data within my school.	225	3	0.0	5.3	69.8	24.9
3	14	I am able to read most data reports.	222	3	0.5	5.0	64.9	29.7
3	15	I have the skills with technology that enable me to create data displays.	225	3	4.4	35.6	43.6	16.4
3	16	I possess the skills necessary to use data in my role as an instructional leader.	225	3	0.4	6.2	70.2	23.1
3	17	I am skillful with using statistics to interpret school data.	225	3	2.7	20.4	64.0	12.9
3		summary		3	1.6	14.5	62.5	21.4
		Perception of Instructional Leader						
4	18	My time at school is focused on instructional leadership.	222	3	1.4	30.6	52.7	15.3
4	19	In performing my job as principal, I consider myself to be an instructional leader.	224	3	0.4	6.7	59.8	33.0
4	20	As a principal, I see myself leading others to make whatever changes are needed to ensure quality instruction.	224	3	0.9	3.6	58.9	36.6
4	23	The quality of leadership I provide makes a difference in student achievement.	225	3	0.0	1.8	54.2	44.0
4		summary		3	0.7	10.6	56.4	32.3
4	*21*	*The best description of my work as a principal is that I run a smooth ship.*	*216*	*3*	*1.9*	*28.7*	*54.6*	*14.8*
4	*22*	*The most important thing I do as a principal is to establish harmonious relationships with the teachers in my school.*	*218*	*2*	*0.5*	*51.4*	*37.2*	*11.0*

D: Domain		I: Question Number		M: Median					
SD: strongly disagree		D: disagree		A: agree		SA: strongly agree			
D	**I**	**question**	**#**	**M**	**SD**	**D**	**A**	**SA**	

D	I	question	#	M	SD	D	A	SA
		Professional Development Opportunities						
5	24	I attended a professional conference in the past three years on the use of data to improve instruction.	226	3	4.4	14.2	38.5	42.9
5	25	I have attended staff development opportunities in the past three years that focused on the use of data as a tool for instructional leadership.	226	3	2.2	13.3	38.5	46.0
5	26	I completed a course offered by a college or university in the past five years that helped me learn strategies for using data as an instructional leader.	226	2	22.1	42.5	17.3	18.1
5	27	My professional reading in the past year has included professional articles in which the author(s) proposed the use of data as an effective tool for instructional leadership.	224	3	2.7	6.2	53.6	37.5
5	28	My professional reading in the past year has included a book on the use of data for effective instructional leadership.	226	3	4.9	33.2	35.0	27.0
5		summary		3	7.3	21.9	36.5	34.3
		School District Characteristics						
6	30	My district provides incentives for principals to use data.	224	2	13.4	43.8	27.2	15.6
6	31	My school district provides opportunities for principals to work together to understand school and district data.	223	3	5.4	26.0	42.2	26.5
6	32	A performance criterion for principal evaluation in my district is the use of data.	223	2	10.8	40.4	34.5	14.3
6	33	District leaders such as supervisors use data when they provide presentations for principals.	224	3	5.4	16.1	54.5	24.1
6	34	My supervisor monitors my use of data.	220	2	11.4	39.5	35.9	13.2
6	35	An expectation of my school district is for principals to use data to improve instructional programs.	223	3	3.1	8.5	53.8	34.5
6		summary		3	8.2	29.0	41.4	21.4
6	29	*My school district provides a computer for my use.*	225	4	1.3	1.8	25.3	71.6

		School Characteristics						
7	36	There are enough parent volunteers in my school to provide the support that is needed.	226	2	10.2	39.8	33.2	16.8
7	39	Parents of students attending my school are proud of our schools success.	225	3	0.0	3.6	56.4	40.0
7	40	Parents of students attending my school are involved in their child s education.	223	3	0.9	11.7	62.8	24.7
7	41	Parents in my school expect the principal to use data.	221	3	3.2	32.6	53.8	10.4
7		summary		3	3.6	21.9	51.5	23.0
7	37	*Teachers in my school seek data when solving problems.*	225	3	4.9	34.7	54.2	6.2
7	38	*Teachers in my school see data as assisting them with improving instruction for students.*	225	3	2.2	22.7	62.7	12.4

Italicized items were eliminated by factor analysis.

		Demographics				
8	42	My gender is:	N=226	N_males=93	N_females=133	
	43	As of September 1 of this school year, I have served as a public school principal for:	N=225	median=9	mean=10.52	std. dev. =7.70
8	44	The grade levels in my school are	N=217			
8	45	Number of years teaching prior to becoming a principal:	N=226	median=11	mean=12.84	std. dev. =8.82
8	46	Percentage of student is school not speaking English	N=218	median=2	mean=9.84	std. dev.=18.26
8	47	Percentage of students in school qualifyin for Free and Reduced Meals is	N=214	median=30	mean=33.77	std. dev.=24.55
8	48	The number of students in my school is	N=223	median=450	mean=465.81	std. dev.=204.69

APPENDIX L:

CHECKING FOR NON RESPONSES (CHI-SQUARE AND T TESTS RESULTS)

Chi-Square Test Results

Item	Total N	Chi-Square Value	Degrees of freedom	Probability	Decision Ho
1	226	5.48	3	.14	accept
2	221	.18	3	.98	accept
3	222	3.52	3	.32	accept
4	223	.88	3	.83	accept
5	226	5.4	3	.14	accept
6	225	.58	3	.90	accept
7	226	2.99	3	.39	accept
8	225	.63	3	.89	accept
9	223	5.45	3	.14	accept
10	225	.86	3	.83	accept
11	222	2.26	3	.52	accept
12	223	1.70	3	.64	accept
13	225	2.64	3	.27	accept
14	222	2.45	3	.48	accept
15	225	1.99	3	.57	accept
16	225	1.81	3	.61	accept
17	225	4.31	3	.23	accept
18	222	.66	3	.88	accept
19	224	4.10	3	.25	accept
20	224	4.31	3	.23	accept
21	216	.86	3	.84	accept
22	218	3.04	3	.39	accept
23	225	.05	3	.97	accept
24	226	2.46	3	.48	accept
25	226	.54	3	.91	accept
26	226	8.37	3	.04	*reject*
27	224	1.75	3	.63	accept
28	226	2.02	3	.57	accept

Item	Total N	Chi-Square Value	Degrees of freedom	Probability	Decision Ho
29	225	10.94	3	.01	*reject*
30	224	1.86	3	.60	accept
31	223	3.61	3	.31	accept
32	223	2.10	3	.55	accept
33	224	4.70	3	.19	accept
34	220	.92	3	.82	accept
35	223	1.63	3	.65	accept
36	226	2.99	3	.46	accept
37	225	4.19	3	.24	accept
38	225	.18	3	.98	accept
39	225	1.79	3	.41	accept
40	223	2.43	3	.49	accept
41	221	3.45	3	.33	accept
42	63	226	3	.38	accept
44	59	217	3	1.96	accept

Results of Two Sample t Test for Items 43, 44, 45,46, 47, 48 (Items yielding continuous data)

Item	N 1st mailing	N 2nd mailing	Mean 1	Mean 2	SD 1	SD 2	Probability Level	T value	Decision
43	162	63	10.56	10.40	7.8	7.57	.89	.14	accept
45	163	63	12.32	12.59	5.74	6.41	.77	.29	accept
46	156	62	8.53	13.13	17.35	20.26	.12	-1.57	accept
47	54	61	31.45	39.08	23.2	27.43	.06	-1.92	accept
48	160	63	466.03	465.29	206.67	20.84	.98	.03	accept

APPENDIX M:

VITA

<u>Vera</u> <u>Disharoon</u> <u>Torrence</u>
17801 Lafayette Drive
Olney, Maryland 20832

Education	Experience
PhD. (Spring, 2002) Virginia Polytechnic Institute and State University Blacksburg, Virginia	**2001-2002** Graduate Research Assistant Virginia Polytechnic Institute and State University—Northern Virginia Campus
M. A. Ed (Spring 1974) University of Maryland College Park, Maryland	**1996-2001** Principal Meadow Hall Elementary 951Twinbrook Parkway Rockville, Maryland
B. S. (Spring 1968) Salisbury University Salisbury, Maryland	**1994-1996** Supervisor Elementary Mathematics Montgomery County Public Schools 850 Hungerford Drive Rockville Maryland
<u>Maryland</u> <u>Department</u> <u>of</u> <u>Education</u> <u>Licensures</u> Superintendent Certification	
Advanced Professional Certification - Administration and Supervision - Mathematics - Elementary Grades - Middle Schools Grades	**1988-1994** Principal Strathmore Elementary 3200 Beaverwood Drive Silver Spring, Maryland
<u>Membership</u> <u>Professional</u> <u>Organizations</u> - Honor Society Phi Kappa Phi - Phi Delta Kappa - Association of Supervision and Curriculum Development - National Association of Elementary School Principals (NAESP) - National Council Supervisor of Mathematics - National Council for Staff Development	**1987-1988** Principal Intern Montgomery County Public Schools Assignment: Meadow Hall Elementary **1984-1987** Teacher Specialist in Elementary Mathematics Area III Office Montgomery County Public Schools **1968-87** Teacher –elementary and middle school Montgomery County (1970-1984) Worcester County (1968-1970)