DO PRINCIPAL LEADERSHIP CHARACTERISTICS AFFECT STUDENT SUCCESS
ON THE ARIZONA INSTRUMENT TO MEASURE STANDARDS?

by

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ABSTRACT

The purpose of this study was to examine the leadership of secondary school principals and its relation to student success on the AIMS. The study focuses on the nature of school leadership which identifies two constructs: leadership of people and purpose. Leadership characteristics, principal characteristics and school characteristics were analyzed with respect to reading gains, writing gains, and math gains on the Arizona Instrument to Measure Standards (AIMS) to determine their relationships with student achievement gains. A total of 70 high school principals were surveyed in Arizona. Pearson Product moment correlations and multiple regression analyses were used to examine these relationships. Certain principal personal characteristics were found to significantly relate to school achievement gains. In addition school characteristics such as Free/Reduced lunch and school size were found to be highly related to student gains.

CHAPTER 1

INTRODUCTION

As the national education agenda continues to require that all students meet educational standards, certain pressures are being placed on school leaders. A research synthesis on effective school leadership indicates that improving instruction and learning is a direct responsibility of the school principal.

The No Child Left Behind legislation passed by the United States Congress and signed into law by President Bush requires states to implement standards-based assessments and provides punitive measures to those states and schools that do not show Adequate Yearly Progress (AYP) as evidenced by student performance. In some situations, the Arizona Department of Education has assumed control over school districts failing to make Adequate Yearly Progress. The federal legislation is in effect through 2008.

In August 2003, the Arizona Department of Education released the results of the Arizona Instrument to Measure Standards (AIMS) Assessment. Alarming statewide results indicated that 40% of high school sophomores did not meet the standards in writing, while 38% fail to meet the standards in reading, and an even more alarming 68% failed to meet minimum standards in mathematics (Education, 2003).

Educational leaders are faced with a difficult task. As pressure from the federal and state government increases, so too does the demand from our communities to ensure that students meet or exceed the state standards.

The demand and pressure from the federal, state, and local governments has impacted educational leaders. Pressure on school leaders has directly influenced research in educational leadership. The pursuit for a deeper understanding of leadership has produced the publication of hundreds of leadership books, each attempting to answer the question as to which leadership characteristic is most productive. Leithwood, Jantzi, and Steinbach (1999) indicate that productive leadership depends heavily on its fit with the social and organizational context in which it is exercised. Therefore, understanding the characteristics of school leadership as they relate to the achievement of students will provide a significant contribution to the academic environment.

Academic standards, accountability, and high-stakes testing are the educational jargon permeating policy, leadership, and the evaluation of our educational systems. Never before have the pressures on students, teachers, parents, and administrators been greater. As Kliebard (1986), Cuban and Tyack (1995), and others have written, educational reform is ingrained in a political concept of linear progress and in its attempts to engineer social policy and practice.

The No Child Left Behind legislation directly impacts how school leaders function. Therefore, school leaders must understand and be able to apply leadership characteristics that are successful within the school environment. It becomes even more important that school leaders understand that there are leadership characteristics, which can be applied across organizational contexts to increase the success of an organization. Leadership responds to the complexity and challenges that impact organizations, the different expectations that employees bring to work, and the respect afforded to people in

organizations to think productively about their mission and how their mission can be addressed within the organization. (Leithwood, Jantzi, & Steinbach, 1999). Sergiovanni and More (1989) indicate "how leadership is conceived and practiced makes a difference.

There have been numerous studies of the principal and the principal's role in creating an effective school. However, very few research studies have attempted to address characteristics of school leadership and their impact on student achievement. Schools are complex organizations. Autocratic, top-down leadership styles are no longer effective. The role of the principal has changed to that of a leader of leaders, rather than a leader of followers. Therefore, this study will add to the literature by examining specific leadership characteristics and their relationship to student achievement. In addition, the data collected may provide information conducive to the professional development of school administrators in the state of Arizona.

Statement of the Problem

Policy decisions implemented as a result of the reauthorization of the Elementary and Secondary Education Act and the No Child Left Behind policy directive imply that high-stakes testing will improve student learning. A policy decision established to improve student achievement directly impacts school leadership. The challenge becomes connecting policy decisions to the leadership enacted by the school leader. The school principal is key to implementing policy decisions established by the federal government. Therefore, the principal becomes important in ensuring the success of school reform movements. According to Bennis (1989) there are three basic reasons why leaders are important. First, they are responsible for the effectiveness of organizations. Second, the

change and upheaval of past years have left us with no place to hide. Third, there is a pervasive national concern about the integrity of our institutions (Bennis, 1989). Burns (1978) suggests that there are many different definitions of leadership. Focusing on the nature of principal leadership will address a significant research need in the area of educational leadership. The fact that an extensive body of evidence suggests that principals make a difference in schools further validates the need for clarity on the characteristics of principal leadership.

The purpose of this study is to examine the leadership of secondary school principals and its relationship to student success on the AIMS. High student achievement is defined as meeting or exceeding standards assessed on the AIMS. The study focuses on the nature of school leadership, which identifies two constructs: leadership of people and purpose. In this framework, Leithwood and Jantzi (1996) describe the various aspects of leadership within schools. The survey created by Leithwood and Jantzi intends to provide a description of school leadership and its various complexities. Leithwood and Jantzi (2000) indicate that principal leadership may take at least six different generic forms (instructional, transformational, moral, participative, managerial, and contingent), and that these forms can be distinguished by their basic foci, key assumptions, and the nature and locus of leadership power.

Quantitative evidence about principal leadership effects is tentative. A review of 40 empirical studies conducted between 1980 and 1995 concluded that such effects, while important, were small and that sophisticated research designs were required to detect them (Hallinger & Heck, 1998). Leadership for the purpose of their study was

conceptualized as an influence process that depends on a person's behavior being recognized as and tacitly acknowledged as a leader by others who cast themselves in the role of followers consenting to be led (Blumberg & Greenfield, 1986; Lord & Maher, 1991). In this perspective leadership is the process of being perceived as a leader.

The Principal Leadership questionnaire as modified by Lucas and Valentine (1999) is divided into the constructs of people and purpose. Lucas and Valentine identified six characteristics of leadership: provides vision, models appropriate behavior, fosters commitment to goals, provides individualized support, provides intellectual stimulation, and holds high expectations. Unlike the work of Leithwood and Jantzi (1996), in which teacher perception of principal leadership was collected, Lucas and Valentine (1999) collected self- reported data from principals. In this questionnaire, the principal responds to 24 questions, each written to fit into the construct of leadership of people or purpose. The Cronbach alpha reliability scores ranged from 0.755 (holds high expectations) to 0.917 (provides intellectual stimulation).

This dissertation study was conducted in Arizona to determine the effect of secondary principal leadership on the success of students on the AIMS. This study examined the relationship between student achievement and the leadership characteristics of the school principal. A correlational research design was utilized. In correlational research, the relationships among variables are studied without an attempt to influence them. The research investigated the relationship between variables. The independent variable for the purpose of this dissertation is leadership characteristics. The dependent variable is student achievement as measured by the AIMS. Other control variables

include the number of years in the position as principal, ethnicity, gender, the number of years at present school, age, and the educational level of the principal.

The AIMS test is a formative assessment aligned to the Arizona state standards. The assessment was developed by Arizona educators and assigns a performance level descriptor to describe the general performance of a student within a performance range. The performance level descriptors for the AIMS test are falls far below, approaches the standard, meets the standard, and exceeds the standard.

Students who score in the falls far below level may have significant gaps and limited knowledge and skills that are necessary to satisfactorily meet the state's reading, math, and writing standards. Students will usually require a considerable amount of additional instruction and remediation in order to achieve a satisfactory level of understanding.

Students who score in the approaches the standard level show partial understanding of the knowledge and application of the skills that are fundamental for proficient work. Students who approach the standard possess some understanding and skills necessary to begin working on the content required of the student who meets the standards. Due to incomplete understanding, additional instruction and remediation may be necessary in order to achieve a satisfactory level of achievement.

Students who score in the meets the standard level demonstrate a solid academic performance on subject matter as reflected by the reading, math, and writing standards. Students who perform at this level are prepared to begin work on materials that may be

required for the next grade level. Attainment of at least this level is the goal for all students.

Students who score in the exceed expectation level illustrate a superior academic performance as evidenced by achievement that is substantially beyond the goal for all students. Students who exceed the standard have demonstrated exceptional and exemplary attainment of knowledge and skills.

In addition to the general performance level descriptors listed below, there are specific descriptors at each grade level. These descriptors indicate some of the knowledge and skills a student may demonstrate on the AIMS.

In this study, high student achievement is defined as obtaining a performance level descriptor of meets or exceeds the standard. The performance level descriptors meet and exceed the standard meet the Arizona criteria for students demonstrating high student achievement.

Research Questions

The following research questions guided this study:

1. How are leadership characteristics, as defined by The Nature of School Leadership Survey, related to high student achievement as measured by the Arizona Instrument to Measure Standards, controlling for gender, number of years in the position of principal, ethnicity, and the educational level of the principal?

2. How do other principal and school characteristics relate to student achievement, controlling for leadership style?

Research Hypotheses

The research questions presented in the previous section led to the following research hypotheses:

Ho1. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student achievement as measured by the AIMS.

Ho2. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student reading achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho3. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student writing achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho4. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student math achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho5. There is no statistically significant relationship among leadership characteristics, principal characteristics, and student achievement gains in reading, writing, and math controlling for leadership characteristics.

Significance of the Study

A few studies on principal effectiveness have specifically examined the various aspects of leadership within schools. Over the last decade, a great deal of effort has been put into documenting the positive and negative influences of leaders upon school cultures and performance (Day, Harris, & Hadfield, 2001). This study provides additional information relating to previous studies of school leadership, many of which are decades old (Sweeney, 1982). Additionally, this study provides meaningful insights into effective leadership practices, which could assist in the professional development of secondary school principals. Information developed from this study can assist secondary principals in improving the achievement of students in Arizona high schools and finally, this study provides a comparative analysis of several variables impacting the effectiveness of schools.

A study conducted on leadership style and high-stakes testing indicates that very few studies have examined the role that the principal plays in student achievement (DeMoss, 2002). The study of characteristics of leadership within secondary schools in Arizona will add to limited research in this area of educational leadership (Harris, 2002). This will provide new information, which may be utilized in the academic environment as a tool for understanding the complexities of school leadership and student achievement.

Limitations

There are several factors that can limit predictive interpretation of the results between the relationship of student achievement and leadership characteristics. First,

academic achievement was measured using point-in-time data, which may restrict inferences about predictive effects. Perhaps leadership characteristics and individual student achievement gains exist. However, looking at school-wide data limits the inferences, which may be made at the individual student level. The information collected using a self reported survey also creates a limitation in the study. An additional limitation is the failure of the survey instrument to collect data on the instructional nature of the principal's leadership.

Definition of Terms

AIMS. The Arizona Instrument to Measure Standards is a test designed to determine whether or not students in Arizona have met the identified state standards.

Collaborative Leadership. Connecting personal needs and motives with a shared public purpose by utilizing others whose alliance can help them do it better, faster, and more efficiently (Rubin, 2002).

Correlational Research. The study of relationships among two or more variables without any attempt to influence them. In their simplest form, correlational studies investigate the possibility of relationships between only two variables, although investigations of more than two variables are common (Fraenkel & Wallen, 2003).

Effective. "Having the intended or expected purpose" (The American Heritage Dictionary of the English Language, 1981, p.416).

Instructional Leadership. The area of educational leadership focused on the curriculum and teacher instructional practices.

Moral Leadership. A theory of school leadership practice based on moral authority and becoming a servant to those that are led (Sergiovanni, 1992).

Nature of School Leadership. A survey developed by Kenneth Leithwood and Doris Jantzi to describe various aspects of leadership within schools.

Organizational Behavior. A discipline that seeks to describe, understand, and predict human behavior in the environment of formal organizations (Carlson, 1996).

Quantitative Methodology. The use of objective approaches reported in terms of scores. The data are obtained when the variable being studied is measured along a scale that indicates how much of the variable is present (Fraenkel & Wallen, 2003).

Transformational Leadership. Leadership that evokes constituents, better nature and movement toward a higher and more universal need and purpose (Bolman & Deal, 1997).

<div align="center">Organization of Remaining Chapters</div>

The second chapter provides a review of the theoretical and empirical literature as it pertains to the leadership constructs identified in the Nature of School Leadership Survey modified by Lucas and Valentine (1996).

The third chapter addresses the rationale for the selected research design and, describes the research methods, including the collection and analysis of data. The fourth chapter reports the research study findings and includes a detailed analysis of the research data collected. The fifth chapter provides a summary of the research study findings. It includes a clarification of the findings, resulting implications, and further recommendations based upon an analysis of the data.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Introduction

This chapter provides a review of the theoretical and empirical literature as it pertains to the leadership constructs identified in the Nature of School Leadership Survey as modified by Lucas and Valentine (1999). The constructs identified are people and purpose. Therefore the second chapter is divided into the following sections:

1. Review of people-centered leadership.

2. Review of leadership of purpose.

3. Review of transformational leadership.

4. Review of the empirical studies pertaining to effective school leadership and its impact on student achievement.

The following review was developed through a systematic search process. The literature review focuses on the leadership domains, which closely parallel the constructs identified by the Nature of School Leadership Survey as modified by Lucas and Valentine (1999). The constructs identified are people and purpose, which may be related to the theoretical literature as follows. Personal-interpersonal leadership will be analyzed in relation to the construct of people. Moral leadership will be examined in relation to the construct of purpose. Transformational leadership theories and how they relate to the constructs of people and purpose will be studied. Finally additional empirical studies pertaining to effective school leadership and its impact on student achievement will be examined.

People: Personal-Interpersonal Leadership Theory

The first construct identified by Leithwood and Jantzi (1996) is people. It is personal relationships that build the backbone for effective schools. Personal/interpersonal leadership focuses on a leader's ability to use relationships effectively to accomplish goals and/or missions in the organization.

The literature in this discipline is primarily focused on the school principal. Connecting the principal's impact on academic achievement has been problematic. Research that has investigated the direct effects on student learning outcomes has reported weak effects, whereas research that has included mediating variables has reported significant effect (Barnett & McCormick, 2004; Leithwood & Jantzi, 2000). Hallinger and Heck (1998) suggested that the relationship between leadership and student learning outcomes is mediated by school conditions including purposes and goals, school structure, people, and school culture. There is widespread agreement between motivational researchers that some aspects of school culture can make a school a place where teachers feel positive about their work and students are motivated to learn (Maehr & Anderman, 1993; Maehr & Fyans, 1989; Maehr & Midgley, 1991). Positive school cultures are associated with higher student motivation and achievement, improved teacher collaboration, and improved attitudes of teachers toward their jobs (Stolp & Smith, 1995). In addition, evidence has suggested that principals are in a unique position to influence school culture by the personal and interpersonal relationships developed with the school staff (Leithwood & Jantzi, 2000).

Sergiovanni (1992) suggests that new leadership, not more leadership, is the key to improving schools. Sergiovanni (1992) concludes that creating a new leadership practice with a moral dimension focused on purpose, values, and beliefs can transform a school from an organization to a community and therefore inspire the kinds of commitment, devotion, and service that can make our schools great. Etzioni (1988) provides a compelling case for moral leadership as a source of motivation and a basis for management. Etzioni (1988) acknowledges the importance of intrinsic and extrinsic motivation. In addition to acknowledging intrinsic and extrinsic motivation he contends that what is important to most people is what they believe, how they feel, and the shared norms and cultural messages that emerge from the communities with which they identify. Etzioni (1988) contends that morality, emotion, and social bonds are motivators that are more powerful than the extrinsic concerns of transactional leadership and the intrinsic concerns of the early stages of transformative leadership.

Intrinsic and extrinsic motivation affect how people feel and what they believe. Emotion and feeling are contributors to the culture of a school. Fullan (2001) indicates that there are four types of teacher culture: fragmented individualism, balkanization, collaborative culture, and contrived collegiality. Teachers operating under fragmented individualism seek protection from outside interference. Balkanization occurs when loyalties and identities are tied to a particular group. A collaborative culture exhibits the characteristics of continuous improvement and shared trust. A collaborative culture produces positive change and increased trust in an organization. Contrived collegiality is an administrative process to create a false sense of working together.

Sergiovanni (1992) indicates that the leadership that counts in the end is the kind that touches people differently. It taps their emotions, appeals to their values, and responds to their connections with other people. It is morally- based leadership and serves as a form of stewardship (Thomas J. Sergiovanni, 1992).

Bolman and Deal (1997) state that leadership must be done simultaneously as a machine, family, jungle, and as a theater. These are metaphors of the frames of leadership that Bolman and Deal label structural, human resource, political, and symbolic. Each of these frames describes a different aspect of the school environment. Bolman and Deal assert that all aspects of leadership fit into one or more of these frames. Frames give leaders a window or lens to view the organization.

The structural frame is based upon theories of sociologists. This is where the metaphor *machine* is cast as a representation of the structural frame. Sociologists emphasize organizational goals, roles, and technology. In this role, the educational leader is a social engineer. The leader analyzes the school environment and its capacities. The structural frame can also be described as a frame of systematic management. It is through the social processes of discourse that individuals form the perceptions on how to best approach policy.

In the structural frame, organizations exist to achieve established goals and the structure is designed to fit the organization's circumstances. By developing the machine as a specialized force of labor, stakeholders can work together to meet organizational goals. The structural frame also displays the premise that organizations exist to serve human needs.

Bolman and Deal associate the metaphor *family* to describe the human resource frame. Leaders empower people through participation and openness and by making others feel part of the organization (Bolman & Deal, 1997). Organizations are contingent upon the inter-relationships between people.

The political frame is based on political science theories where power, conflict, and the distribution of scarce resources are the key issues. The metaphor used to describe this frame is the *jungle*. Leaders in the political frame understand that cooperation is achieved by leaders who understand conflict and the use of power. In the political frame, organizational goals and decisions emerge from bargaining, negotiation, and jockeying for position among members of different coalitions. Scarce resources and enduring differences create conflict central in organizational dynamics. In the political frame, power is the most important resource (Bolman & Deal, 1997).

The symbolic frame is based on theories of anthropologists who focus on problems of meaning. The metaphor used to describe this frame is *theater*. Leaders utilize stories and symbols to communicate a vision and culture that builds faith and loyalty between students, parents, teachers, staff, and the community. In the symbolic frame, many events are more important for what is expressed than for what they produce. In this frame people create symbols to resolve and provide direction in order to deal with uncertainty. The symbolic frame suggests that significance exists not in what happened, but what it means (Bolman & Deal, 1997).

When addressing measures that have a profound impact on the daily operation and instructional practices in schools, it is important that leaders demonstrate the

following basic ingredients. Each one of these basic ingredients connects to the personal

and interpersonal leadership attributes exhibited by the school principal.   Bennis (1989)

states:

> The first basic ingredient of leadership is a guiding vision. The leader has a clear
>
> idea of what he wants to do--professionally and personally--and the strength to
>
> persist in the face of setbacks, even failures. The second basic ingredient of
>
> leadership is passion--the underlying passion for the promises of life, combined
>
> with a very particular passion for a vocation, a profession, and a course of action.
>
> The third basic ingredient of leadership is integrity. There are three essential parts
>
> of integrity: self-knowledge, candor, and maturity (pp. 39-40).

Bennis (1989) describes trust as the underlying issue that will get people on your side

and keep them there. Bennis (1989) indicates that there are four ingredients leaders have

that generate and sustain trust. The first ingredient is constancy: whatever surprises

leaders themselves may face, they don't create any for the group. The second ingredient

is congruity: leaders walk their talk. In true leaders, there are no gaps between the

theories they espouse and the life they practice. The third ingredient is reliability:

Leaders are there when it counts; they are ready to support their co-workers in the

moments that matter. The final ingredient is integrity: Leaders honor their commitments

and promises.

Bolman and Deal (1997) associate the metaphor *family* to describe the human

resource frame. In this theory, leaders empower people through participation and

openness and through making sure that they have the autonomy and resources to do their

job well (Bolman & Deal, 1997). In terms of leadership this, frame is essential in developing effective relationships and effective communication.

Research in goal theory has underscored the importance of perceptions of purpose in the determination of the nature and quality of investment in a task (Ames, 1990; Ames & Ames, 1989; Dweck & Leggett, 1988; Nicholls, 1984). It is possible for schools to define teaching, schooling, and learning in different ways, and the choice of definitions has profound effects on motivation and student learning (Maehr & Midgley, 1991). Research in the area of student achievement has indicated that teaching and learning occur in quite different forms when guided by two different goals: task focus goals and performance goals. (Ames & Ames, 1989; Deal & Peterson, 1990; Maehr et al., 1996). Task focus goals are based on the belief that effort leads to success, while performance focus goals are based on the belief that the goal of learning is to do better than others through grades and other rewards (Maehr & Anderman, 1993; Midgley, 1993; Midgley, Anderman, & Hicks, 1995).

Combs (1999), Miser (1999), and Whitaker (1999) refer to a person-centered theory on educational leadership. This person-centered perspective opens new ways of thinking about leadership. This approach deals with human behavior and how people see themselves acting within their environment. A review of hundreds of research studies seeking to discover methods of effective practitioners leads to the conclusion that there is no such thing as a good or right method that can be clearly associated with good or bad performance. Effective leaders understand that people behave according to how they see themselves, how they see situations they confront, and the purposes they hold at the

moment in which they act (Combs, Miser, & Whitaker, 1999). This theory implies that how stakeholders view themselves in the context of their organizational relationship impacts their personality within the organization.

Gunn and Holdaway (1986) conducted a study to assess organizational characteristics and school effectiveness, as well as the principal's personal characteristics, job satisfaction, leader effectiveness, and level of influence. The researchers surveyed 155 Canadian secondary principals. They observed that administrators rated their effectiveness as leaders in terms of their perceptions that their schools were effective and whether or not they had an impact on others. In addition, principals assessed their leadership effectiveness in terms of making decisions and establishing conditions for effective work, and finally, principals related their sense of accomplishment to student outcomes, community acceptance of the school, and their ability to act as stewards in their school (Gunn & Holdaway, 1986). This study suggests that administrators might alter achievement by attending to personal relationships within the school between themselves and their staff.

Through a literature analysis and their study of 1,200 school principals, Smith and Andrews (1989) concluded that principals who were perceived by their teachers to be strong instructional leaders exhibited significantly greater gain scores in achievement in reading and mathematics than did schools operated by average and weak instructional leaders (Smith & Andrews, 1989). In addition, Smith and Andrews (1989) concluded that increased student achievement does not occur in isolation. The principal's role is critical to the school improvement process. To accomplish this, principals must influence

the perceptions of the teachers in the building by communicating the vision of the school through relationships developed with their staff.

Educational research clearly implies that personal and interpersonal skills are an essential component to developing a shared vision and mutual trust among leaders and their stakeholders. Personal and interpersonal skills also foster a commitment to core values within an organization. The principal's role is critical in the process of developing personal and interpersonal relationships. These relationships contribute to the effectiveness of the school and impact student achievement.

<div align="center">Purpose: Moral Leadership</div>

The second construct identified by the Nature of School Leadership Survey is purpose. If leaders demonstrate leadership by pursuing moral purpose, understanding the change process, building relationships, creating and sharing knowledge, and attempting to build coherence, then the results will be rewarding and the benefits enormous to the organization. It is through the building of relationships sustained by mutual trust that organizations transform themselves into learning cultures. Sergiovanni (1992) indicates that leadership focused on attitudes and values informing leadership practice frames our views about how leadership belongs to everyone.

In a study conducted by Valentine and Bowman (1991), they compared two groups of schools. The first group (the effective schools) had been recognized by the United States Department of Education (DOE) school recognition program in 1987. It was assumed that the 271 schools identified in that program met the criteria of an effective school. The study randomly selected 259 other schools from across the nation

to serve as the control group. Each school was sent a packet asking the principal to select 10 teachers to complete the Audit of Principal Effectiveness survey, which was created by the researchers in 1984. The survey is designed to describe the leadership skills of the building administrator. Utilizing a Likert rating scale from 1 (not effective) to 9 (most effective), teacher responses were averaged for each school to represent a school score.

The researcher found that teachers in the recognized schools rated their building principals higher on all factors than did the teachers of randomly selected schools. The pattern of differences between the perceptions of the teachers surveyed in this study supports the belief that more effective schools are administered by more effective principals (Valentine & Bowman, 1991). The research further validates that principals who are truly interested in improving their schools should closely examine how well they are communicating the school's goals and how well they are promoting positive relationships within their schools. This is a departure from traditional school leadership literature.

Bennis and Nanus (1985) in their book on leadership strategies indicate that literally thousands of empirical investigations of leaders have been conducted in the last 75 years alone, but no clear and unequivocal understanding exists as to what distinguishes leaders from non-leaders and, perhaps more importantly, what distinguishes effective leaders from ineffective leaders and effective organizations from ineffective organizations (Bennis & Nanus, 1985). They go on to note that never have so many labored so long to say so little and that they have lost faith in the traditional conceptions of leadership. The lack of confidence in traditional leadership increases the need to look

at mutually reinforcing influences on leadership. These influences are described as characteristics by Lucas and Valentine (1999). These characteristics are providing vision, modeling appropriate behavior, fostering commitment to goals, providing individualized support, providing intellectual stimulation, and holding high expectations.

Fullan (2001) describes moral purpose as acting with the intention of making positive differences in the lives of employees, customers, and society as a whole. Leaders who combine a commitment to moral purpose will be more successful and able to understand the process of change. Building capacity by securing and maintaining strong relationships enables purposeful interaction and problem solving, which are critical in producing mutually reinforcing positive change (Fullan, 2001).

Moral leadership utilizes mutual reinforcement as a tool for successful leadership. The development of the capacity for leadership in schools is an important aspect of effective leadership. In schools with high leadership capacity, learning and instructional leadership become fused into professional practice. Lambert (2002) indicates that these schools have important features in common. In schools with high leadership capacity, the principal and teacher, as well as many parents and students participate together as mutual learners and leaders in study groups, action research teams, vertical learning communities, and learning-focused staff meetings. Shared vision results in program coherence and participants reflect on their core values and weave those values into a shared vision to which all can commit themselves. All members of the community continually ask, "How does this instructional practice connect to our vision?" High leadership capacity schools encourage inquiry-based use of information guides decisions

and practice. Generating shared knowledge becomes the energy force of the school. Teachers, principals, students, and parents examine data to find answers and pose new questions. Together they reflect, discuss, analyze, plan, and act. Roles and actions in these schools reflect broad involvement, collaboration, and collective responsibility. Participants engage in collaborative work across grade levels through reflection, dialogue, and inquiry. This work creates the sense that school leaders share responsibility for the learning of all students and adults in the school. Finally, reflective practice consistently leads to innovation. Reflection enables participants to consider and reconsider how they do things, which leads to new and better ways. Participants reflect through journaling, coaching, dialogue, networking, and their own thought processes. Finally, student achievement is high or steadily improving. Student achievement in the context of leadership capacity is much broader than test scores; it includes self-knowledge, social maturity, personal resiliency, and civic development. It also requires attention to closing the gap in achievement among diverse groups of students by gender, race, ethnicity, and socioeconomic status (Lambert, 1998).

It is important to understand and be able to discuss mental models and their influence in understanding and explaining our social world. These mental models allow leaders to visualize an image of the structure of the organization. Senge (1990) discusses these mental models and states, "New insights fail to get put into practice because they conflict with deeply held internal images of how the world works, images that limit us to familiar ways of thinking and acting" (Senge, 1990, p. 174). He argues further that mental models are powerful in what we do because "they affect what we see"(Senge,

1990). By examining our social world it is clear how the structural frame and the machines that drive our social policy must be understood. The social world impacts everyone and at times hinders school leaders from attempting new things. Morgan (1986), Bolman and Deal (1991) and Sergiovanni (1992) all speak about this in their research in how to structure our thoughts to discover new perspectives. Lucas and Valentine (1999) refer to these social policies as providing intellectual stimulation. These new perspectives work to provide information on particular leadership characteristics and their impact on the educational institution.

<div style="text-align:center">Transformational Leadership-Transactional Leadership</div>

Bass (1990) indicates that transformational leadership occurs when leaders within the organization broaden the interests of the employees, define the purpose and mission of the group, and encourage employees to look beyond their own self-interest for the benefit of the group. Transformational leadership was first described by Burns (1978). He indicated that there are two factors that differentiate ordinary from extraordinary leadership. He claims that transactional leadership is ordinary and that transformational leadership is development oriented for the purpose of change. Transformational leaders possess the following qualities: charisma, individualized consideration, and intellectual stimulation.

Aviolo and Bass (1987) identify five common characteristics of transformational leaders: charisma, the leader develops pride, faith, and respect, and has the ability to see what is most important. The leader also possesses a sense of vision that is articulated. Effective leaders provide <u>individualized consideration</u>: they tend to pay close personal

attention to stakeholders' needs and treat each member of the organization with respect. The leader provides intellectual stimulation and enables stakeholders to look at problems from different angles and proactively resolves problems that are stagnant. The leader provides <u>contingent reward</u> and frequently reinforces in subordinates the actions necessary to achieve a desired reward for their efforts. Finally, the leader provides management by exception, in which he or she refrains from giving direction in a functional system, and intervenes when necessary if set standards or expectations are not met.

Ryan and Bohlin (1999) offer another perspective about leadership, which states that there are a number of initiatives we can take to build a community of virtue. "When these actions are intentional, we help to raise everyone's awareness about what matters most in our school community" (Ryan & Bohlin, 1999).

Burns (1978) focused on the relationship between the leader and the followers. Burns indicates that leader and follower relationships focus on the continuing pursuit of higher purposes and change for the better occurs both in the purposes and resources of those involved in the relationship itself. The transformational leader plays a pivotal role in precipitating change, and followers and leaders are connected in the transforming process (Burns, 1978). Burns (1978) indicates that in transformative leadership, leaders and followers are united in pursuit of higher-level goals common to both, and that both the leader and the follower want to become the best. Both leader and follower want to shape the school in a new direction. Burns (1978) indicates that such leadership occurs when one or more persons engage with others in such a way that leaders and followers raise

one another to higher levels of motivation and maturity. Burns (1978) indicates that eventually transformative leadership becomes moral because it raises the level of human conduct and ethical aspiration of both the leader and the led.

Sergiovanni (1990) suggests that there are four distinct stages of leadership. In transactional leadership, the leader and the led exchange needs and services in order to accomplish objectives. Leaders and followers assume that they do not share a common stake in the organization and therefore they must arrive at some form of an agreement. The wants and needs of the followers are exchanged against the wants and needs of the leader. Sergiovanni (1990) refers to this form of leadership as leadership by bartering. In this form of leadership, continual performance is contingent upon parties keeping the bargain they agreed to. Leadership by bartering is consistent with contingency theory, exchange theory, and path goal theory. In each of these leadership theories, exchanging human needs and interests allows for the completion of independent but organizationally related objectives.

Leadership as building is a transformational leadership style focused on arousing human potential, satisfying higher-order needs, and raising expectations of both the leader and the led in a way that motivates both to higher levels of commitment and performance. On one hand, leadership by bartering responds to the physical, security, social, and ego needs. On the other, leadership by building responds to esteem, achievement, competence, autonomy, and self-actualization needs. Argyris (1957), Miles (1965), McGregor (1960), Maslow (1954), and Likert (1961) all provide compelling evidence supporting the efficacy of leadership by building.

Burns (1978) indicates that transformative leadership becomes moral because it raises the level of human conduct and ethical aspiration of both the leader and the led. When this occurs, transformative leadership takes the form of leadership of bonding. In this leadership style, the leader focuses on arousing awareness and consciousness that elevates school goals and purposes to the level of a shared covenant that bonds the leader and follower in a moral commitment. Leadership by bonding responds to such human needs as the desire for purpose, meaning, and significance in what one does. Leadership by bonding is characterized by cultural and moral leadership.

Leadership by banking is the fourth leadership stage. Leadership by banking seeks to routinize school improvements, thus conserving human energy and effort for new projects and initiatives. In practical application, the leader ministers to the needs of the school and works to serve others so they are better able to perform their responsibilities. In addition to manager, minister, and servant, the leader functions as the high priest by protecting the values of the school (T.J. Sergiovanni, 1984).

Sergiovanni (1990) indicates that when leadership by bartering, building, and bonding are viewed sequentially, they are developmental stages of leadership for school improvement. Bartering provides the push needed to get things started, building provides the support needed to deal with uncertainty and to respond to higher levels of need fulfillment, and bonding provides the inspiration needed for performance and commitment beyond expectations. Leadership by banking provides the opportunity for school improvement initiatives to become real by institutionalizing initiatives as part of the everyday life of the school.

Sergiovanni (1984) examined leadership forces linked to excellence.   He indicates that aspects of leadership can be described metaphorically as forces available to administrators, supervisors, and teachers as they influence the events of schooling. Force is defined as the strength or energy brought to bear on a situation to start or stop motion or change. Sergiovanni (1984) suggests that these leadership forces can be thought of as the means available to administrators, supervisors, and teachers to bring about or preserve changes needed to improve schooling.

Sergiovanni (1984) identifies five leadership forces: technical, human, educational, symbolic, and cultural that are necessary to achieve excellent schools. He describes excellent schools as those that hang together with a sense of purpose that rallies people to a common cause. He suggests that work has meaning and life is significant. Teacher and students work together with spirit, and accomplishments are recognized. Sergiovanni proposes that excellent schools have high morale, high test achievement, and possess other factors above and beyond morale and achievement.

The technical leader assumes the role of management engineer. By emphasizing the concepts of planning and time management technologies, contingency leadership theories, and organizational structures, the leader provides planning, organizing, coordinating, and scheduling to the life of the school (Sergiovanni, 1984).

The human leader assumes the role of human engineer. By emphasizing the concepts of human relations, interpersonal competence, and instrumental motivational technologies, the leader provides support, encouragement, and growth opportunities to the school's human organization. The skilled leader is able to build and maintain morale

by utilizing participatory decision-making processes.

The educational leader assumes the role of clinical practitioner bringing expert professional knowledge related to teaching effectiveness, educational program development, and clinical supervision. The clinical practitioner is skilled at diagnosing educational problems, counseling teachers, supervising, evaluating instruction, and staff development.

According to Sergiovanni (1984), the technical, human, and educational forces of leadership provide the critical mass for competent schools. A deficit in any one of the three upsets the critical mass, and less effective schools emerge. He suggests that excellent organizations are characterized by other leadership qualities, forces described as symbolic and cultural.

Symbolic leaders assume the role of chief and by emphasizing selective attention (the modeling of important goals and behaviors) signal to others what is of importance and value. Purposing is a major concern to the symbolic force. Purposing is defined as the continuous stream of actions by an organization's formal leadership that has the effect of inducing clarity, consensus, and commitment regarding the organization's basic purpose (Vaill, 1984). The object of symbolic leadership is the stirring of human consciousness, the integration and enhancing of meaning, the articulation of key cultural strands, and the linking of persons involved in the school's activities to them (Sergiovanni, 1984).

Bennis (1989) argues that a compelling vision is the key ingredient of leadership in excellent organizations. Vision refers to the capacity to create and communicate a view

of a desired state of affairs that induces commitment among those working in the organization. Vision, therefore, becomes the substance of what is communicated as symbolic aspects of leadership are emphasized.

The cultural leader assumes the role of high priest, seeking to define, strengthen, and articulate values, beliefs, and cultural strands that give the school its unique identity. Administrators working as cultural leaders articulate school purposes and mission, socialize new members into the culture, maintain and reinforce traditions and beliefs, and develop symbols over time that reward individuals who reflect the culture.

Lucas and Valentine (1999) identify fostering commitment to goals as a characteristic of leadership of purpose. Bass (1985) concludes that transformational leaders motivate followers by raising their concern about the importance of organizational goals. By seeking to encourage collaboration, transformational leaders attempt to shape a positive organizational culture (Fullan, 1991). Leithwood (1994) suggests that although transformational principals can enhance student engagement in learning, studies have not shown any direct effects on student achievement.

The transformational conception of leadership includes developing and maintaining a school culture supportive of the school's mission and the work required to achieve that mission (Leithwood & Duke, 1999). This theory of leadership also includes providing high levels of support for the school. Lucas and Valentine (1999) identify providing support as a leadership characteristic of purpose. As the school reform movement evolves under the pressures exhibited by the No Child Left Behind legislation, principals are pressured to be accountable for school improvement and the achievement

of students. Donaldson (2001) suggests that transformational leadership paired with the support of instructional leadership will assist organizations to be purposeful in learning and performing at high levels.

Pellicer (1990) indicates that two major changes have developed in the way the high school principalship is perceived by those who study it. He indicates that the principalship has been linked to school effectiveness by those who study it and that principals using proper management techniques and leadership strategies are expected to have a dramatic impact on the effectiveness of their schools. In addition, he suggests that the principalship is more often discussed as a collaborative responsibility collectively referred to as the administrative team (Pellicer, 1990).

There are four components to transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1999). The literature on transformational leadership is connected to literature on virtue and moral character, which is embedded in The Nature of School Leadership Survey modified by Lucas and Valentine (1999). The literature suggests that transformational leadership is directly linked to the leadership of people and purpose.

Rappaport (1987) indicates that understanding the dynamics of transformational leadership requires a clear understanding of empowerment and motivation. Empowerment is a process by which people, organizations, and communities gain mastery over issues of concern to them. Transformational leaders, therefore, design strategies and structures to articulate their vision in a way that empowers employees (Rappaport, 1987).

Howell and Avolio (1993) conducted a study where they examined transactional and transformational leadership. Their study measured the following: leadership behavior, locus of control, support for innovation, and consolidated unit performance. A questionnaire was used to measure leadership behavior. Locus of control, support for innovation, and consolidated unit performance were measured using quantitative methods. The three scales used to measure transformational leadership were charisma, intellectual stimulation, and individualized consideration. The three scales used to measure transactional leadership were contingent reward, active management by exception, and passive management by exception (Howell & Avolio, 1993).

The results of the Howell and Avolio study indicated that individualized consideration, intellectual stimulation, and charisma had a positive impact on business-unit goals. Also, transformational leadership behaviors contributed positively to unit performance. Their results also indicated that in order to have higher payoffs, managers should develop transformational leadership behaviors. Finally, they concluded that transformational leadership behaviors are also needed in order to build a more effective leadership profile (Howell & Avolio, 1993).

Burns (1978) considered transformational and transactional leadership to be at opposite ends of the spectrum. He considered transactional leadership to be less effective than transformational leadership. Bass and Avolio (1993) discuss a different conception of transactional and transformational leadership in what they call the two-factor theory of leadership. In their view the two forms of leadership build on one another (Bass & Avolio, 1993). Transactional processes foster the basic needs of people in the

organization, but do little to bring about change in the organization. For change to occur, members of the organization must experience transformational practices (Bass & Avolio, 1993).

Further emphasizing that the school principal is responsible for accountability, Glasman (1984) conducted a longitudinal analysis of *the Educational Administration Quarterly* publications from 1965 to 1983. Most of these studies focused on input-output associations between student background characteristics and student achievement; the researcher found an absence of student achievement within the correlates of principal characteristics. Glasman (1984) examined a study of 185 principals that were considered to be effective principals and 117 less effective principals and concluded that a large percentage of principals believed that communicating student achievement gains with teachers had a positive effect on student achievement. Lucas and Valentine (1999) indicate that providing individualized support is a characteristic of leadership that promotes the development of relationships with school staff.

The literature on effective schools refers to the need for the strong leadership of the principal. The educational reform movement and the school accountability movement have focused public interest on the principal. In a study to investigate teacher perceptions of principal effectiveness in selected secondary schools in Tennessee, Williams (2001) compared teachers' perceptions of principal effectiveness in secondary schools nominated for the National Secondary School Recognition Program and a randomly selected sample of schools not nominated for the National Secondary School Recognition Program in Tennessee. Evaluation of principal effectiveness was measured

by the teachers' perceptions, which were measured by the Audit of Principal

Effectiveness (APE). The teachers were asked to participate by answering a

questionnaire regarding their principal.

Scores on organizational development, organizational procedures, organizational

directions, student relations, affective processes, educational program, instructional

improvement, and curriculum improvement of principals in high schools nominated for

the National Secondary School Recognition Program were significantly higher than

scores for principals of randomly selected high schools not nominated (Williams, 2001).

This indicates that fostering a commitment to goals and providing intellectual stimulation

and vision are characteristics associated with effective school leadership.

Findings of a two-year study in Seattle elementary schools suggest that the

principal plays a crucial role in the academic performance of students, particularly low-

achievers. The researchers administered a questionnaire to all district instructional staff

designed to measure 18 strategic interactions between principals and teachers in terms of

the principal as resource provider, instructional resource, communicator, and visible

presence. Andrews and Soder (1987) concluded that the gain scores of students in

strong-leader schools were significantly greater in both reading and mathematics than

those of students in schools rated as having average or weak leaders (Andrews & Soder,

1987).

To determine the effect of principals on instructional performance of schools,

Ogawa and Hart (1985) concluded that principals were responsible for between 2% to 8%

of the variance in student achievement on standardized test scores. Their analysis

included 200 California elementary public schools and 200 public high schools in 1982 (Ogawa & Hart, 1985).

D'Agostino (2000) studied the Prospect (1994) longitudinal data in mathematics and reading achievement in first and third grade cohorts. He concluded that student achievement growth can be improved through modification of instructional practices and the school's organizational culture.

Quinn (2002) indicates that leadership demonstrated by the school principal does have an impact on student achievement. He indicates that principal leadership characteristics have a statistical impact on student achievement. In a study that utilized the school as the level of analysis, Quinn examined eight elementary schools, eight middle schools, and eight high schools in Missouri over a 2-year time period. Utilizing the four variables of instructional leadership identified in earlier studies by Andrew and Smith (1989), Quinn found that instructional leadership had the highest predictive value of academic achievement. This conclusion signified that when the principal serves as an instructional resource, higher levels of active learning and teaching emerge. This research narrows the question as to what impact principal leadership has on academic achievement.

Summary

The leadership constructs of people and purpose provide a direction and framework to study how the leadership of school principals can impact student achievement. This theoretical framework is possible because the leadership of people and the leadership of purpose are closely linked with transformational leadership. In a

time where high-stakes testing controls educational accountability, little work has examined the role that principals play in the high-stakes testing process (DeMoss, 2002). Effective instructional leaders are encouraged to create learning communities built on the development of relationships with the teachers in the determination of issues related to curriculum, alignment, pedagogy, and achievement (Darling-Hammond, 1997; Fullan, 1998; Leithwood, 1992; Sergiovanni, 1995). Transformational leadership, personal-nterpersonal leadership, and moral leadership provide a framework to study the principal's impact on the success of students on the AIMS assessment. Research on effective instructional leadership and student achievement is connected to the relationships developed by the school leader and the learning community. This study will add to the literature on educational leadership by examining principal leadership and its impact on student achievement. It will also add to the literature by providing additional quantitative information on the correlation between principal's leadership characteristics and student achievement as they relate to leadership of purpose and people.

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

Empirical research studies provide experiential information critical in understanding the application of theory and practice. These studies also form the foundation in educational research by attempting to answer questions pragmatically. It is through the continued search for answers that researchers build upon existing knowledge. The framework utilized for the discussion of the empirical literature included the researcher's prioritization of each study based on how closely connected the study was to

the dissertation topic.

Fullan's (1998) discussion of principals' increasing context of dependency as public and policy pressures increase in schools would suggest that principals in high-stakes accountability environments would be likely to minimize their vulnerability by opting for prepackaged approaches to raising test scores (DeMoss, 2002). This approach of leadership would be at odds with the kinds of expectations for effective leadership that educational researchers have put forth during the past few decades.

DeMoss (2002) conducted a research study examining leadership styles and high-stakes testing. The study draws from case studies at eight Chicago elementary schools that were among the lowest performing schools in the system. The sample aimed to provide a set of schools that afforded high comparability in student populations while maximizing differences in schools' achievement levels. Her study concluded that the results exhibited by the schools representing the most promising long-term and systemic gains are related to the principals' leadership style and that this had possible policy implications for how this district might support the professional development for effective leadership (DeMoss, 2002). In her results, DeMoss (2002) indicates that the two schools in which leadership styles provided viable options for systemic school improvement had principals who were committed to teachers' meaningful participation in instructional decisions. They also led their schools on a model based on professionalism and empowerment. In addition, curriculum improvements rather than test scores were seen as the primary target for teachers' efforts, with the tests serving as a source of information by which teachers could gauge their instructional efforts (DeMoss, 2002). In

her study, an attempt is made to answer two questions: The first is how principals have negotiated and provided a rationale for changes made when faced with high-stakes testing. The second is how different leadership styles mediated the impact of the tests differently on instruction and achievement. In her study, DeMoss (2002) utilized case studies at eight Chicago schools that were among the lowest performing schools in the system.

Day, Harris, and Hatfield (2001) conducted a study of effective school leadership by collecting and comparing the perspectives of those who, in addition to the principals themselves, arguably possess the closest working knowledge of leadership, i.e. teachers, parents, governors, and students. This study proposes a model of values led contingency leadership which takes into account the realities of successful principalship of schools in changing times, and moves beyond polarized concepts of transactional and transformational leadership. The researchers understood that effective leadership was both a highly contextualized and relational construct. A generic case study protocol was designed and utilized interviews to collect data. The matrix for selection of this qualitative case study research was based on four dimensions which included schools working with primary through secondary including special schools, schools in which publicly acknowledged effective leaders had spent different amounts of time, principals who were identified by independent external inspection reports, and schools in which student measurable achievement levels were raised in ways which were attributed to the quality of the principal (Day et al., 2001). They conclude that the most important aspect

of leadership for all of the principals in their study was working successfully with people. It is about displaying vision, trust, credibility, and support for the staff (Day et al., 2001).

Edmonds (1978) conducted research titled "Search for Effective Schools." Although this research was directed at the elementary level, it has become a major contributor to school effectiveness research. These studies involved elementary schools in Michigan and were initially directed by Harvard University. In his research, Edmonds tried to analyze urban schools that are instructionally effective for poor and minority students. Initially his studies involved 20 elementary schools in the Detroit model cities neighborhood and were a re-analysis of the 1966 Educational Opportunity Survey data, and an analysis of six pairs of elementary schools in Lansing, Michigan (Edmonds, 1978). Through this multi-analysis, Edmunds concluded that schools and school leadership do make a difference, and that there are tangible and indispensable characteristics of instructionally effective schools attributable to leadership. Edmonds indicates that effective schools are marked by leaders that promote an atmosphere that is orderly without being rigid, quiet without being oppressive, and generally conducive to business at hand. These leaders frequently monitor pupil progress and ensure that it is incumbent upon the staff to be instructionally effective for all pupils. He indicates that leaders of effective schools set clearly stated goals and learning objectives and develop and communicate a plan for dealing with reading and mathematics achievement problems. Finally, Edmonds implies that leaders of effective schools demonstrate strong leadership with a mix of management and instructional skills (Edmonds, 1978).

In an effort to capture the process of education in individual schools, Rutter

(1979) conducted a longitudinal analysis on fifteen hundred junior high school age

students in 12 inner-city schools in London. Youngsters were assessed on school entry

variables at 10 years of age and reassessed at exit three years later. An analysis of

standardized test scores identified schools that appeared to exert a positive influence on

pupil progress as well as schools that were less successful. A two-year period of

observations, interviews, and surveys was directed toward analyzing the kind of

environments that provided for teaching and learning. Other variables were also

identified to include academic emphasis, teaching skills, and student participation. The

research concluded that the influence of the head teacher (supervisor) was very

considerable on the identified variables (Sweeney, 1982). The research also validated

that there appeared to be a connection between school outcomes and leadership when the

curriculum and approaches were agreed upon and supported by the staff (Sweeney,

1982).

A research synthesis on the effect of secondary schools on children indicates that

school effectiveness is enhanced by principals who emphasize achievement, set

instructional strategies, provide an orderly atmosphere, frequently evaluate student

progress, coordinate instruction, and support teachers (Sweeney, 1982). Harris (2002)

conducted research on effective leadership in schools facing challenging contexts. In

order to explore leadership approaches in schools, a research design was constructed that

incorporated many methods. England's Department designated the 10 schools for

Education and Skills as facing challenging circumstances. These were schools in which

25% or fewer of pupils achieved success at age 16 taking an external examination. The research study consisted of three phases: Phase one involved a literature review and generation of research questions, phase two involved data collection, within-case analysis and initial reporting, phase three incorporated between-case analysis and the testing of initial findings with head teachers not involved in the study (Harris, 2002). Over 50 interviews were conducted and transcribed and were then sorted into common themes or patterns. Her research reflected a complex picture of leadership that was democratic and centrally concerned with giving others the responsibility to lead. She identified the characteristics of effective schools as schools that had vision and values, distributed leadership, invested in staff development, fostered positive relationships and worked on building a community (Harris, 2002).

In a report titled "The Power to Change", researchers examined the practices at three high-performing schools in Massachusetts, New York, and Washington State. The study's goal was to identify methods that other schools could use to improve their programs and boost achievement. Researchers found that high-impact schools differed from typical high schools in several important ways. First, principals were more likely to match talented teachers with students who needed them most. Second, support for new teachers tended to be more thorough and included such techniques as providing model lesson plans and teaming a beginner with an experienced colleague. Finally, the more successful schools emphasized reading for at-risk students and used test data to monitor student progress and adjust teaching techniques.

Empirical research indicates that effective school leaders delegate authority, cultivate leadership in others, encourage grassroots initiatives, and establish working relationships with staff. Little research specifically addresses the secondary school environment however many of the studies examined provide a framework for effective leadership. This study will fill a gap in existing empirical literature by focusing directly on the characteristics of the secondary school principal and his or her impact on the achievement of students on a high-stakes examination by controlling for gender, number of years in the position of principal, ethnicity, and the educational level of the principal.

This researcher will contribute information that may help other school districts to determine characteristics beneficial in the development of school administrators.

CHAPTER 3

METHODOLOGY

This chapter outlines the design methods that were utilized in this study. The following sections are included: overview, data and instrumentation, data analysis, and limitations. The following research questions guided this study:

1. How are leadership characteristics, as defined by The Nature of School Leadership Survey, related to high student achievement as measured by the AIMS, controlling for gender, number of years in the position of principal, ethnicity, and the educational level of the principal?

2. How do other principal and school characteristics relate to student achievement controlling for leadership style?

The research questions led to the following research hypotheses:

Ho1. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student achievement as measured by the AIMS.

Ho2. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student reading achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho3. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student

writing achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho4. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student math achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho5. There is no statistically significant relationship among leadership characteristics, principal characteristics, and student achievement gains in reading, writing, and math controlling for leadership characteristics.

The focus of this correlational study is the relationship between student achievement and leadership characteristics. The existing data will be used for the following purposes: first, to determine if leadership characteristics of school principals are related to the achievement of students in Arizona's public high schools; second, to ascertain if principal gender, number of years in the position as principal, race-ethnicity of the principal, and educational level of the principal are related to the achievement of students in Arizona's public high schools.

<div align="center">Data and Instrumentation</div>

The source of data for this study was individual high school AIMS results published on the Arizona Department of Education website AIMS school data for the school year 2003 and 2004 were retrieved from the Arizona Department of Education website for reading, writing, and mathematics. Survey data were collected from Arizona secondary high school principals. The following questions were asked to develop

background characteristics for the school principals surveyed. How many years have you been in the position of principal? What is your ethnicity? What is your highest level of education? How many years have you been in your present school? What is your gender? What is your age? This information was placed into an Excel file.

The model of transformational leadership utilized for data collection in this study describes transformational leadership along six dimensions: building school vision and goals, providing intellectual stimulation, offering individualized support, symbolizing professional practices and values, demonstrating high performance expectations, and developing structures to foster participation in schools. Each dimension is associated with more specific leadership practices and problem solving processes used by transformational leaders (Leithwood & Jantzi, 1999). Previous studies on school leadership suggest that inquiring only about the direct effects of school leadership on student outcomes tend to report weak or inconclusive outcomes, whereas studies that include mediating and/or moderating variables in their design tend to report significant effect (Hallinger & Heck, 1996). This study, therefore, incorporates the recommendation by other researchers to expand the model to be inclusive of mediating and/or moderating variables.

A significant challenge for leadership research is to identify alterable conditions likely to have direct effects on students and to inquire about the nature and strength between them. The Nature of School Leadership Survey modified by Lucas and Valentine (1999) was utilized to collect information on principal leadership characteristics. Lucas and Valentine modified the instrumentation developed by

Leithwood and Jantzi (1996) to capture self-reported data from principals at the middle

level (Grades 6-8) (Appendix B). The information was captured utilizing a 24-question

survey to be self-administered by principals. The leadership characteristics identified

were providing vision, modeling appropriate behavior, fostering a commitment to goals,

providing individualized support, providing intellectual stimulation, and holding high

expectations. These characteristics were further divided into two constructs: leadership

of people and leadership of purpose. This Principal Leadership Questionnaire was

utilized in this study. Cronbach alpha reliability scores were assigned to each

characteristic assessed on the Principal Leadership Questionnaire: providing vision

(.894), modeling appropriate behavior (.899), fostering commitment to goals (.804),

providing individualized support (.844), providing intellectual stimulation (.917), and

holding high expectations (.755). According to Lucas and Valentine (1999), these

Cronbach alpha reliability scores were highly significant. The higher the score, the more

reliable the characteristic. Each of the 24 questions asked on the Principal Leadership

Questionnaire related to one of the characteristics of leadership listed above.

The target population chosen for this study included all public high school

principals in the state of Arizona. The sample provided results that are generalizable to

principals in the Southwest. This sample was chosen as a result of limited research done

in the secondary school environment on principal leadership characteristics. Data

regarding principal gender, number of years in the position, ethnicity, and educational

level of the principal were also collected by utilizing information collected from the

Arizona Department of Education website as well as information collected from each

school's School Report Card. The Arizona School Report Card is an analysis or snapshot

of the school. Inclusive in this report are: student enrollment, school size classification,

assessment results across time, and the assigned school label (under-performing,

performing, highly performing, excelling).

The Nature of School Leadership Survey was voluntarily completed by secondary

principals in public high schools in the state of Arizona (N = 230). This self-

administered survey was designed to identify a principal's self-reported leadership

characteristics on one of two constructs: people and purpose. The original survey

developed by Leithwood and Jantzi (1996) was designed to describe various aspects of

leadership within schools. The intention of the original survey was to provide a

description of school leadership with all of its complexities as described in the four

constructs of people, purpose, culture, and collaboration. A copy of the modified survey

listing factors and reliability scores is included in Appendix A.

The following demographic information was collected from principals completing

the survey: number of years at your present school, number of years in the educational

system, age, gender, number of years in position as principal, ethnicity of the principal,

and educational level. A copy of the demographic survey is included in Appendix B.

Two separate mailings were sent in order to maximize the number of responses.

The first mailing was sent on December 3, 2004, and the second mailing was distributed

on January 14, 2005. Mailings were sent to all secondary public high school principals in

the state of Arizona. The researcher mailed the survey to all secondary principals in

Arizona. It was anticipated that a positive response in terms of survey return would

represent a cross section of Arizona schools and would be generalizable to principals in the Southwestern states.

Units of Analysis

Units of analysis in the study were secondary public school principals in schools serving Grades 9-12 in Arizona. Demographic information of principals included the number of years in the position as principal, ethnicity, the number of years at the present school, age, gender, and the educational level of the principal.

The dependent variable in this study was student achievement as measured by the AIMS. Data utilized for the purpose of this study were the results of the 2003 and 2004 AIMS. These data were selected so that a comparison could be made at two points in time. The researcher utilized point-in-time data to determine leadership characteristic effect on student success on AIMS across two years. The AIMS assessment is a criterion-referenced test given in reading, writing, and mathematics. Students completing the assessment fall into one of four categories: falls far below the standard, approaches the standard; meets the standard; exceeds the standard. Students receiving scores that meet the standard are determined to have met the assessment qualification to receive a high school diploma in the state of Arizona. High-achieving students are defined as those that have met or exceeded the AIMS standards.

The independent variable in this study is leadership style or characteristic. The Nature of School Leadership Survey as modified by Lucas and Valentine (1999) identifies two constructs of school leadership: people and purpose. These constructs were developed as items used to measure transformational leadership.

In addition to the dependent and independent variables, the researcher also allowed for several extraneous (control) variables. The first extraneous variable is the gender of the school principal. The second extraneous variable is number of years in the position of principal. The researcher controlled for ethnicity of the school principal as either white or nonwhite. Finally, the educational level of the principal served as a control by determining whether the principal had earned a doctorate degree.

The data were collected and converted to usable electronic format. Data were placed into Excel spreadsheet(s). When multiple spreadsheets were used, a unique numerical indicator was included in the spreadsheet. This identifier was utilized to match demographic, school data, and principal responses across data sets.

The next step involved cleaning the data. Cleaning the data is a process utilized to remove data that is incomplete. In this study, schools were deleted from the sample due to incomplete data. According to Edgington (1995) the size of a given sample is the least essential feature of any statistical analysis. It was determined that the sample size (70) was large enough to provide results that could be statistically analyzed to draw inferences.

<div align="center">Experimental Design and Procedures</div>

This study utilized a two-step process to gather data. Leithwood and Jantzi (1999) and Hallinger and Heck (1998) examined data utilizing a two-step process. This process allows the researcher to initially determine a general relationship between variables and then to perform additional statistical analysis on selected variables. The first analysis was the calculation of a Pearson product moment correlation. This was

done to determine the general relationship between achievement as measured by AIMS test data and leadership style or characteristic without controlling for any intervening variables. The second step utilized a standard multiple regression to determine the effect of the extraneous variables, which included principal gender, number of years in the position of principal, ethnicity, and education level of the principal. The basic dependent variable for analysis was high student achievement. High student achievement is defined as meets/exceeds standards. Low achievement is defined as falls far below standards. By controlling for the extraneous variables listed above, the researcher was able to focus on the coefficient of leadership style/characteristic as well as discuss independent impacts of other school and principal characteristics while controlling for leadership style.

Statistical Analysis

The Pearson product-moment correlation will be used to examine the relationship among the six leadership characteristics. Each correlation is tested for significance using a t-test. This will determine if the correlation is statistically significant and not due to chance. The alpha level of .05 is used to indicate statistical significance.

Kerlinger and Pedhauzer (1973) indicate that multiple regression analysis results in a multiple regression equation consisting of b weights (regression coefficients). If these coefficients are statistically significant, they indicate the predictor variables that are significantly related to the dependent variable. This means the regression analysis can find the variables that help to explain the dependent variable.

In the present study, one of the regression analyses used the dependent variable of reading gains. That dependent variable is predicted with the six leadership characteristics

(vision, modeling, commitment, support, stimulation, and high expectations). Each of the six leadership characteristics predictors will have a b weight. If any b weight is statistically significant, this means that the characteristic is important in understanding the dependent variable (reading gains). Often, several predictors are statistically significant, and therefore indicate a complex relationship among the predictors in determining reading gains (the dependent variable). This same analysis is used to address mathematics and writing gains as dependent variables. In the present study, the b weight and the standard error of measurement are presented.

Kerlinger and Pedhauzer (1973) indicate that the multiple correlation squared (R2) is the proportion of variance of the dependent variable due to the predictor variables(e.g. six leadership characteristics) or other principal and school characteristics. When these predictor characteristics influence the dependent variable, they account for a proportion of the variance of the dependent variable. As will be explained in Chapter 3, the multiple regression equation only accounted for a small percentage of variance (e.g. 7%). In this study, some multiple regression analyses was done in stages where the leadership characteristics were entered in the first stage to predict reading gains. The second stage entered principal characteristics and the third stage entered school characteristics in the regression analysis. At each stage the R2 increases. (e.g. from 7% to 19% to 50%). This means that the leadership characteristics influence 7% of reading gains variance. When principal characteristics are added to leadership characteristics in the regression they influence 19% of reading gains variance. Finally, when leadership

characteristics, principal characteristics and school characteristics are included in the regression analysis, they influence 50% of the variance of reading gains.

This demonstrates that the R2 provides an important indicator of the influence of all predictor variables on the dependent variable. In this study, the dependent variables are reading gains, writing gains and mathematics gains on the Arizona Instrument to Measure Standards.

Limitations

Limitations are existing conditions that are outside of the researcher's control. Limitations effectively place restrictions on the conclusions of a study and their application to other situations.

The purpose of this study was to investigate principal leadership characteristics and their impact on student achievement. Due to the nature of this study, a number of limitations are revealed. First, the survey of Arizona high school principals limits the generalizability of the results to the Southwestern region of the United States. A survey sent to secondary principals in Arizona reflects the opinions of Arizona secondary administrators. Each of these administrators share similar responsibilities for implementing the requirements set forth in Arizona policy. Second, this study focused on principals' perceptions of their leadership. This is only valid in terms of that perception being a representation of reality. Perception is the process of acquiring, interpreting, selecting, and organizing sensory information. Just as one object can give rise to multiple percepts, so an object may fail to give rise to any percept at all: if the percept has no grounding in a person's experience, the person my literally not perceive it. As shown

in Appendix B, this researcher was interested in the percepts of principals as identified on the Principal Leadership Questionnaire. Third, this study assumes that respondents would answer in a truthful and honest manner. Additionally, this study is unable to control for all other determinants of student achievement as well as the experience level of principals responding to the survey. As shown in Appendix B, 13 of the principal respondents were in their first year as principal. Other determinants of student achievement could include but are not limited to family environment, student motivation, and school curriculum. The study also focuses on the aggregate school achievement data levels rather than individual student test scores. A focus on data at a point in time limits the discussion on causality. Longitudinal data are necessary to look at how principal leadership is related to changes in student achievement. Longitudinal data provide researchers information over a period of time and are deemed to be better measures of correlation. Finally, this study utilized one perceptual dimension of principal leadership.

<div align="center">Summary</div>

The following research questions guided this study:

1. How are leadership characteristics, as defined by The Nature of School Leadership Survey, related to high student achievement as measured by AIMS, controlling for gender, number of years in the position of principal, race/ethnicity, and educational level of principal?

2. How do other principal and school characteristics relate to student achievement controlling for leadership style?

The research questions presented in the previous section led to the following research hypotheses:

Ho1. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student achievement as measured by the AIMS.

Ho2. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student reading achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho3. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student writing achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho4. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student math achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho5. There is no statistically significant relationship among leadership characteristics, principal characteristics, and student achievement gains in reading, writing, and math controlling for leadership characteristics.

The current national focus on accountability necessitates that educational researchers examine the data on student achievement and school leadership. No Child

Left Behind Legislation mandates that all students meet established achievement criteria. It is therefore crucial to examine data to ascertain whether or not school leadership can impact student achievement.

CHAPTER 4

RESULTS

Introduction

As stated in Chapter 1, this study examined the relationship between student achievement and leadership characteristics. The data were based on information collected from high school principals in December 2004 and January 2005. Achievement data utilized point-in-time data from the AIMS results in 2003 and 2004. This chapter presents an examination of the research questions and null hypotheses of this study. Statistical information is presented in tables to provide necessary background to understand the analysis.

Sample

Two hundred and thirty surveys were sent to all high school principals in the state of Arizona. Seventy surveys were returned which achieved a 30% response rate. A total of 77.1% of respondents possessed a master's degree and 22.9% possessed a doctorate. Eighty-eight-percent of respondents were Caucasian and 11% were Hispanic. Nearly 80% the respondents had from 1 to 10 years of experience as a principal. As referenced in Table I more female principals (60%) responded than male principals (40%). Demographic data indicated that of the two hundred and thirty principals, 70% were male and 30% were female.

Table 1. *Descriptive Statistics*

	N	Pct.
1. How many years (including this one) have you been in the position of principal?		
1 to 2 years	13	18.6
3 to 5 years	23	32.9
6 to 10 years	20	28.6
11 to 15 years	4	5.7
16 to 18 years	4	5.7
19+ years	6	8.6
2. What is your ethnicity?		
Caucasian	62	88.6
Hispanic	8	11.4
African-American	--	--
Asian	--	--
Other	--	--
3. What is your highest level of education?		
Masters Degree	54	77.1
Doctorate Degree	16	22.9
4. How many years have you been at your present school?		
1 to 2 years	16	22.9
3 to 5 years	25	35.7
6 to 10 years	17	24.3
11 to 19 years	10	14.3
19+ years	2	2.9
5. Your gender?		
Female	42	60.0
Male	28	40.0
6. Your age:		
Less than 35 years	1	1.4
35 to 39 years	7	10.0
40 to 44 years	15	21.4
45 to 49 years	11	15.7
50 to 54 years	20	28.6
More than 54 years	16	22.9

This study examined the relationship between student achievement and leadership characteristics. The first hypothesis examines the relationship between student achievement and leadership characteristics. The hypothesis is written in the null to scrutinize these relationships.

Ho1: There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student achievement as measured by the AIMS. Pearson product moment correlations were used to examine the relationships between student achievement (reading, writing, and math) and leadership characteristics (provides vision, models appropriate behavior, fosters commitment to goals, provides individualized support, provides intellectual stimulation, and holds high expectations). There were no statistically significant relationships between student achievement and leadership characteristics. This leads to a failure to reject the null hypothesis (Ho1) that there is no significance between student achievement and leadership characteristics. As indicated in Table 2, the correlations between the six leadership styles and student achievement did not meet the $p < .05$ criteria for statistical significance. Table 2. When examining Table 2, correlations of leadership style and achievement were performed. Reading, writing, and math changes were listed from 2003 and 2004 as a reference.

The intercorrelations among leadership characteristics were examined. Several relationships were statistically significant beyond the .01 level. The highest correlation was between providing vision and modeling appropriate behavior $r = .601$, $p < .01$.

This suggests that principals who provide vision also tend to model appropriate behavior.

A significant relationship was found between providing vision and fostering commitment

to goals, r = .549, p < .01.

Intercorrelation of Leadership Styles

	1	2	3
1. Vision	1.00	.601**	.549**
2. Models		1.00	.380**

Table 2. *Correlations of Leadership Styles and Achievement*

Achievement	Vision	Models	Fosters	Supports	Intellectual	Expectations
Reading 2003	.094	.128	.039	-.001	-.102	-.186
Writing 2003	.142	.157	.079	-.035	-.140	-.177
Math 2003	.067	.086	.009	.066	-.133	-.120
Reading 2004	.103	.111	.043	-.025	-.149	-.158
Writing 2004	.156	.164	.054	-.086	-.119	-.179
Math 2004	.080	.100	-.011	.044	-.134	-.082
Reading Change	.058	-.012	.023	-.074	-.178	.027
Writing Change	.025	.010	-.064	-.123	.059	.004
Math Change	.047	.055	-.043	-.030	-.037	.049

* p < .05
<u>Note</u>. Reading, Writing, and Math meets or exceeds standards.
Vision = Provides vision; Models = Models appropriate behavior; Fosters = Fosters commitment to goals; Supports = Provides individualized support; Intellectual = Provides intellectual stimulation; Expectations = Holds high expectations.

This suggests that principals who provide vision also tend to model appropriate behavior and foster commitment to goals. As shown in Table 3 other significant and nonsignificant relationships illuminate the relationships among leadership characteristics.

Ho2. <u>There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student reading achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.</u>

Table 3. *Intercorrelation of Leadership Styles*

	1	2	3	4	5	6
1. Vision	1.00	.601**	.549**	.268**	.328**	.456**
2. Models		1.00	.380**	.123	.270*	.399**
3. Fosters			1.00	.396**	.425**	.398**
4. Supports				1.00	.229	.309**
5. Intellectual					1.00	.448**
6. Expectation						1.00

*p < .05, **p < .01

<u>Note</u>. Vision = Provides vision; Models = Models appropriate behavior; Fosters = Fosters commitment to goals; Supports = Provides individualized support; Intellectual = Provides intellectual stimulation; Expectations = Holds high expectations.

To examine the relationship of six leadership characteristics and reading achievement gains 2003 to 2004 two multiple regression analyses were computed: (1) A regression was computed using the six leadership characteristics to predict reading gains. None of the leadership characteristics was statistically significant in the regression analysis for reading gains as the dependent variable. As shown in Table 4, of the six leadership characteristics intellectual stimulation appeared to be of a substantial importance (b = -6.04, p = .068), but this did not reach the .05 level of statistical significance. Intellectual stimulation as a leadership characteristic appeared to be important but not statistically. The adjusted R-squared = .02 was very small.   (2) A regression was computed using the six leadership characteristics to predict reading gains controlling for principal characteristics. This means that the six principal characteristics were entered in the regression equation at the same time as the leadership characteristics to predict reading gains as the dependent variable. This is done to determine if principal characteristics when combined with leadership characteristics would prove to be statistically significant.   As shown in Table 4 only one of the principal characteristics, ethnicity, was significant b = 11.38, p = .002 for the regression analysis with reading gains as the dependent variable. Since the b = 11.38 is positive and the principal's ethnicity was coded 1 = Caucasian, 0 = other, this positive b-weight indicates schools with greater gains are associated with Caucasian principals.

Regression of Six Leadership Characteristics Controlling Six Principal Characteristics with Reading Gains as Dependent Variable

Variable	No Control b weights	p	Principal Controls	P
Leadership Characteristics				
1. Vision	3.02	.511	3.08	.484
	(4.57)		(4.38)	
2. Modeling	-1.90	.600	-4.58	.189
	(3.61)		(3.44)	
3. Commitment	2.09	.531	4.74	.125
	(3.31)		(3.04)	
4. Support	-2.85	.416	-5.35	.107
	(3.48)		(3.27)	
5. Stimulation	-6.04	.068	-4.41	.149
	(3.25)		(3.02)	
6. High Expectations	2.11	.425	2.29	.349
	(2.64)		(2.43)	
Principal Characteristics				
1. Years in Position			.35	.120
			(.22)	
2. Ethnicity			11.38	.002*
			(3.49)	

Ho3. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student writing achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level. To examine the relationship of six leadership characteristics and writing achievement gains 2003 to 2004 two multiple regression analyses were computed: (1) A regression was computed using the six leadership characteristics to predict writing gains. None of the leadership

characteristics was statistically significant in the regression analysis for writing gains as

the dependent variable. (2) A regression was computed using the six leadership

characteristics to predict writing gains controlling for principal characteristics. Two of

the principal characteristics, years in present school b=-.83, p=.002 and gender b=5.90,

p= .038, were significant for the regression analysis with writing gains as the dependent

variable. The b-weight for years in school is negative, b = -.83 which suggests that those

principals with more years at the present schools are associated with lower gains in

writing.

*Regression of Six Leadership Characteristics Controlling Six Principal Characteristics
with Writing Gains as Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p
Leadership Characteristics				
1. Vision	2.82 (5.35)	.600	.68 (5.18)	.896
2. Modeling	-.57 (4.22)	.893	-2.27 (4.07)	.579
3. Commitment	-2.42 (3.87)	.534	.11 (3.59)	.977
4. Support	-3.85 (4.07)	.349	-5.45 (3.86)	.164
5. Stimulation	2.75 (3.80)	.472	3.41 (3.56)	.343
6. High Expectations	.08 (3.09)	.979	-.30 (2.87)	.916
Principal Characteristics				
1. Years in Position			.39 (.26)	.134
2. Ethnicity			2.51 (4.12)	.544
3. Education			2.74 (3.10)	.382
4. Years School			-.83 (.26)	.002*

Table 4. *Regression of Six Leadership Characteristics Controlling Six Principal*
Characteristics with Reading Gains as Dependent Variable

Variable	No Control b weights	p	Principal Controls	P
Leadership Characteristics				
1.Vision	3.02	.511	3.08	.484
	(4.57)		(4.38)	
2.Modeling	-1.90	.600	-4.58	.189
	(3.61)		(3.44)	
3.Commitment	2.09	.531	4.74	.125
	(3.31)		(3.04)	
4.Support	-2.85	.416	-5.35	.107
	(3.48)		(3.27)	
5.Stimulation	-6.04	.068	-4.41	.149
	(3.25)		(3.02)	
6.High Expectations	2.11	.425	2.29	.349
	(2.64)		(2.43)	
Principal Characteristics				
1.Years in Position			.35	.120
			(.22)	
2.Ethnicity			11.38	.002*
			(3.49)	
3.Education			4.09	.125
			(2.63)	
4.Years School			-.20	.371
			(.22)	
5.Gender			3.27	.169
			(2.34)	
6.Age			-.30	.092
			(.17)	
Constant	10.31		13.24	
	(15.07)		(16.64)	
Summary Statistics				
Adjusted R2	.02		.19	
Observations	70		70	

* Statistically Significant.

As shown in Table 5 the b-weight for gender (0 = male, 1 = female) was positive, b = 5.90, indicating that the female principals tend to be associated with schools making greater gains in writing.

Ho4. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student math achievement gains as measured by the AIMS controlling for principal gender, number of years in the position of principal, ethnicity, and educational level. To examine the relationship of six leadership characteristics and math achievement gains 2003 to 2004 two multiple regression analyses were computed. (1) A regression was computed using the six leadership characteristics to predict mathematics gains. None of the leadership characteristics was statistically significant in the regression analysis for mathematics gains as the dependent variable. (2) A regression was computed using the six leadership characteristics to predict math gains controlling for principal characteristics. As shown in Table 6 only one of the principal characteristics, ethnicity was significant (b = 10.93, p = .021) for the regression analysis with mathematics gains as the dependent variable. Since the b = 10.93 is positive and the principal's ethnicity was coded 1 = Caucasian, 0 = Other, this positive b-weight indicates schools with greater gains are associated with Caucasian principals.

Ho5.   There is no statistically significant relationship among leadership characteristics, principal characteristics, and school characteristics and student achievement gains in reading, writing, and math controlling for leadership characteristics.

Table 5. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics with Writing Gains as Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p
Leadership Characteristics				
1.Vision	2.82	.600	.68	.896
	(5.35)		(5.18)	
2.Modeling	-.57	.893	-2.27	.579
	(4.22)		(4.07)	
3.Commitment	-2.42	.534	.11	.977
	(3.87)		(3.59)	
4.Support	-3.85	.349	-5.45	.164
	(4.07)		(3.86)	
5.Stimulation	2.75	.472	3.41	.343
	(3.80)		(3.56)	
6.High Expectations	.08	.979	-.30	.916
	(3.09)		(2.87)	
Principal Characteristics				
1.Years in Position			.39	.134
			(.26)	
2.Ethnicity			2.51	.544
			(4.12)	
3.Education			2.74	.382
			(3.10)	
4.Years School			-.83	.002*
			(.26)	
5.Gender			5.90	.038*
			(2.77)	
6.Age			-.18	.382
			(.20)	
Constant	-2.26		12.29	
	(17.63)		(19.67)	
Summary Statistics				
Adjusted R2	.06		.14	
Observations	70		70	

* Statistically Significant

Table 6. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics with Math Gains as Dependent Variable*

Variable	No Control b weights	P	Principal Controls	p
Leadership Characteristics				
1. Vision	2.00	.719	3.32	.569
	(5.52)		(5.80)	
2. Modeling	1.07	.807	-2.17	.637
	(4.36)		(4.56)	
3. Commitment	-2.10	.602	-.29	.943
	(4.00)		(4.03)	
4. Support	-.82	.846	-1.28	.768
	(4.20)		(4.33)	
5. Stimulation	-1.57	.691	1.14	.777
	(3.93)		(4.00)	
6. High Expectations	1.50	.639	1.96	.544
	(3.19)		(3.21)	
Principal Characteristics				
1. Years in Position			.36	.227
			(.29)	
2. Ethnicity			10.93	.021*
			(4.62)	
3. Education			-2.26	.519
			(3.48)	
4. Years School			-.03	.905
			(.29)	
5. Gender			.94	.762
			(3.10)	
6. Age			-.19	.417
			(.23)	
Constant	2.16		-9.25	
	(18.20)		(22.05)	
Summary Statistics				
Adjusted R2	.08		-.03	
Observations	70		70	

* Statistically Significant.

(1) To examine the relationship between reading gains (dependent variable) and principal characteristics, leadership characteristics, and school characteristics, three multiple regression analyses were computed. (2) To examine the relationship between writing gains (dependent variable) and principal characteristics, leadership characteristics, and school characteristics were also computed. (3) To examine the relationship between math gains (dependent variable) and principal characteristics, leadership characteristics, and school characteristics were also computed. As shown in Table 7, Table 8, and Table 9 Null Hypothesis 5 adds schools characteristics into the regression analysis to examine leadership characteristics and principal characteristics as predictors of reading gains, writing gains, and math gains.

When predicting reading gains, school size was statistically significant b = -2.52, p = .021 as well as percent participating in free or reduced lunch b = -.25, p < .001.

Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Reading Gains as Dependent Variable

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
School Characteristics						
1. School Size					-2.52 (1.04)	.021*
2. Free Lunch					-.25 (.05)	.000*

These negative b-weights suggest larger schools are associated with smaller reading gains, and the larger the percentages of free or reduced lunch are associated with lower gains. The R-squared statistics for the reading gains analysis show that when predicting reading gains with leadership characteristics the importance of the six characteristics was

7% of the variance, when the principal's characteristics were added to the regression analysis, the R-squared jumped to 19%. And when the school characteristics were added to the analysis, the R-squared jumped to 50%. This suggests the importance of the principal's personal characteristics and the great importance of school characteristics in determining reading gains.

Table 7. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Reading Gains as Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1. Vision	1.53 (7.45)	.838	5.51 (7.21)	.450	4.28 (5.67)	.456
2. Modeling	-2.03 (4.91)	.682	-3.85 (4.54)	.403	-5.26 (3.60)	.153
3. Commitment	1.84 (4.36)	.675	4.50 (3.92)	.259	3.18 (3.10)	.312
4. Support	-3.22 (4.85)	.511	-6.43 (4.42)	.155	-5.55 (3.51)	.123
5. Stimulation	-6.66 (4.76)	.169	-4.25 (4.40)	.341	-3.79 (3.46)	.281
6. High Expectations	1.56 (3.13)	.621	1.14 (2.81)	.688	2.17 (2.22)	.333
Principal Characteristics						
1. Years in Position			.346 (.28)	.223	.371 (.22)	.103
2. Ethnicity			11.65 (4.54)	.015*	6.85 (3.76)	.077
3. Education			5.86 (3.56)	.108	2.83 (3.04)	.358
4. Years School			-.33 (.28)	.250	-.27 (.22)	.239
5. Gender			2.76 (3.22)	.399	3.99 (2.60)	.134
6. Age			-.42 (.24)	.090	-.13 (.20)	.515
School Characteristics						
1.School Size					-2.52 (1.04)	.021*
2.Free Lunch					-.25 (.05)	.000*
Constant	20.39 (23.39)		16.42 (23.59)		29.42 (18.74)	
Summary Statistics						
Adjusted R2	.07		.19		.50	
Observations	49		49		49	

* Statistically Significant.

When predicting writing gains with leadership characteristics, principal characteristics and school characteristics were not statistically significant. Years in position (b = .66, p = .049), years in school (b = -.88, p = .010), and gender (b = 8.46, p = .034) were statistically significant. These results involved a sample size of 49 instead of 70 because of the inclusion of school characteristics, which had some missing data.

Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Writing Gains as Dependent Variable

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1. Vision	11.55 (8.79)	.196	11.61 (8.14)	.162	11.43 (8.34)	.180
2. Modeling	-1.19 (5.79)	.839	-3.52 (5.13)	.496	-3.73 (5.29)	.528
3. Commitment	-4.15 (5.14)	.425	-1.31 (4.43)	.770	-1.36 (4.55)	.768
4. Support	-7.37 (5.73)	.205	-7.83 (4.99)	.126	-7.44 (5.15)	.158
5. Stimulation	5.37 (5.62)	.345	7.83 (4.96)	.123	8.01 (5.09)	.125
6. High Expectations	-2.25 (3.69)	.546	-3.28 (3.17)	.307	-3.17 (3.26)	.337
Principal Characteristics						
1. Years in Position			.69 (.32)	.036*	.66 (.33)	.049*
2. Ethnicity			3.26 (5.12)	.528	2.36 (5.53)	.673
3. Education			3.58 (4.01)	.378	4.15 (4.46)	.359
4. Years School			-.89 (.32)	.008*	-.88 (.33)	.010*
5. Gender			7.95 (3.64)	.036*	8.46 (3.83)	.034*

As shown in Table 8 the R-squared statistic indicated that 23% of the variance of writing gains was predicted by the regression analysis with leadership characteristics, principal characteristics, and school characteristics.

Three more regression analyses were computed to examine the relationship between mathematics gains, leadership characteristics, principal characteristics, and school characteristics.

When these analyses were computed the free or reduced lunch variable that was obtained from only 49 schools reduced the sample size to 49 and thus changed the results in minor ways. Tables 7, 8, and 9. The important regression analysis of Table 9 involved the prediction of math gains with leadership characteristics, principal characteristics and school characteristics. Only free or reduced lunch was a statistically significant predictor (b = -.15, p = .027). This suggested the greater the percentage of free or reduced lunch, the lower the math gains. As shown in Table 9 the R-squared statistic was .12 indicating 12% of the variance of math gains was accounted for by this regression analysis.

Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Math Gains as the Dependent Variable

Variable	No Control b weights	P	Principal Controls	p	School Controls	p
Leadership Characteristics						
1. Vision	-1.79	.803	1.22	.874	.72	.921
	(7.11)		(7.65)		(7.13)	
2. Modeling	2.35	.618	.39	.935	-1.06	.817
	(4.68)		(4.82)		(4.52)	
3. Commitment	-2.38	.570	-.75	.858	-1.64	.676
	(4.16)		(4.16)		(3.89)	
School Characteristics						
1. Free Lunch					-.15	.027*
					(.06)	

Table 8. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Writing Gains as Dependent Variable*

Variable	No Control b weights	P	Principal Controls	p	School Controls	p
Leadership Characteristics						
1. Vision	11.55	.196	11.61	.162	11.43	.180
	(8.79)		(8.14)		(8.34)	
2. Modeling	-1.19	.839	-3.52	.496	-3.73	.528
	(5.79)		(5.13)		(5.29)	
3. Commitment	-4.15	.425	-1.31	.770	-1.36	.768
	(5.14)		(4.43)		(4.55)	
4. Support	-7.37	.205	-7.83	.126	-7.44	.158
	(5.73)		(4.99)		(5.15)	
5. Stimulation	5.37	.345	7.83	.123	8.01	.125
	(5.62)		(4.96)		(5.09)	
6. High Expectations	-2.25	.546	-3.28	.307	-3.17	.337
	(3.69)		(3.17)		(3.26)	
Principal Characteristics						
1. Years in Position			.69	.036*	.66	.049*
			(.32)		(.33)	
2. Ethnicity			3.26	.528	2.36	.673
			(5.12)		(5.53)	
3. Education			3.58	.378	4.15	.359
			(4.01)		(4.46)	
4. Years School			-.89	.008*	-.88	.010*
			(.32)		(.33)	
5. Gender			7.95	.036*	8.46	.034*
			(3.64)		(3.83)	
6. Age			-.48	.087	-.44	.142
			(.27)		(.29)	
School Characteristics						
1. School Size					-.91	.558
					(1.53)	
2. Free Lunch					-.02	.806
					(.08)	
Constant	-11.67		.36		.97	
	(27.60)		(26.63)		(27.54)	
Summary Statistics						
Adjusted R2	.05		.27		.23	
Observations	49		49		49	

* Statistically Significant

Table 9. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Math Gains as the Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1.Vision	-1.79 (7.11)	.803	1.22 (7.65)	.874	.72 (7.13)	.921
2.Modeling	2.35 (4.68)	.618	.39 (4.82)	.935	-1.06 (4.52)	.817
3.Commitment	-2.38 (4.16)	.570	-.75 (4.16)	.858	-1.64 (3.89)	.676
4.Support	-.21 (4.63)	.964	-2.29 (4.69)	.629	-2.57 (4.41)	.563
5.Stimulation	-4.54 (4.54)	.323	-2.14 (4.67)	.649	-2.22 (4.35)	.614
6.High Expectations	-.11 (2.98)	.971	.17 (2.98)	.955	.69 (2.78)	.805
Principal Characteristics						
1. Years in Position			.29 (.30)	.342	.36 (.28)	.206
2. Ethnicity			9.84 (4.81)	.048*	8.35 (4.73)	.086
3. Education			.82 (3.77)	.829	-2.88 (3.82)	.456
4. Years School			-.130 (.30)	.666	-.09 (.28)	.742
5. Gender			2.34 (3.42)	.498	2.04 (3.27)	.536
6. Age			-.35 (.25)	.173	-.23 (.25)	.370
School Characteristics						
1.School Size					.261 (1.31)	.843
2.Free Lunch					-.15 (.06)	.027 *
Constant	22.89 (22.30)		18.42 (25.03)		26.91 (23.54)	
Summary Statistics						
Adjusted R2	.08		-.02		.12	
Observations	49		49		49	

* Statistically Significant.

Summary

No relationship was found between leadership characteristics and student achievement, but significant relationships were found among leadership characteristics. The intercorrelations among leadership characteristics suggested that relationships were statistically significant beyond the .01 level. The highest correlation was between providing vision and modeling appropriate behavior r = .601, p < .01. This suggests that principals who provide vision also tend to model appropriate behavior. A significant relationship was found between providing vision and fostering commitment to goals, r = .549, p < .01. This suggests that principals who provide vision also tend to model appropriate behavior and foster commitment to goals. Other significant and non-significant relationships are suggested among leadership characteristics.

Regression analyses of reading, writing, and math gains with leadership characteristics did not reveal statistical significance. Regression analyses of reading, writing, and math controlling for principal characteristics revealed significant relations. A regression was computed using the six leadership characteristics to predict writing gains controlling for principal characteristics. Two of the principal characteristics, years in present school b=-.83, p=.002 and gender b=5.90, p= .038, were significant for the regression analysis with writing gains as the dependent variable. The b-weight for years in school is negative, b = -.83 which suggests that those principals with more years at the present schools are associated with lower gains in writing. A regression was computed using the six leadership characteristics to predict math gains controlling for principal characteristics. As shown in Table 6 only one of the principal characteristics, ethnicity

was significant (b = 10.93, p = .021) for the regression analysis with mathematics gains as the dependent variable. Since the b = 10.93 is positive and the principal's ethnicity was coded 1 = Caucasian, 0 = Other, this positive b-weight indicates schools with greater gains are associated with Caucasian principals.

Regression analyses of reading, writing, and mathematics gains, controlling for leadership characteristics, principal characteristics and school characteristics revealed significant relationships. When predicting reading gains, school size was statistically significant b = -2.52, p = .021 as well as percent participating in free or reduced lunch b = -.25, p < .001. These negative b-weights suggest larger schools are associated with smaller reading gains, and the larger the percentages of free or reduced lunch are associated with lower gains. The R-squared statistics for the reading gains analysis show that when predicting reading gains with leadership characteristics the importance of the six characteristics was 7% of the variance, when the principal's characteristics were added to the regression analysis, the R-squared jumped to 19%. And when the school characteristics were added to the analysis, the R-squared jumped to 50%. This suggests the importance of the principal's personal characteristics and the great importance of school characteristics in determining reading gains.

When predicting writing gains with leadership characteristics, principal characteristics and school characteristics were not statistically significant. Years in position (b = .66, p = .049), years in school (b = -.88, p = .010), and gender (b = 8.46, p = .034) were statistically significant. These results involved a sample size of 49 instead of 70 because of the inclusion of school characteristics, which had some missing data.

As shown in Table 8 the R-squared statistic indicated that 23% of the variance of writing gains was predicted by the regression analysis with leadership characteristics, principal characteristics, and school characteristics.

Three more regression analyses were computed to examine the relationship between mathematics gains, leadership characteristics, principal characteristics, and school characteristics.

When these analyses were computed the free or reduced lunch variable that was obtained from only 49 schools reduced the sample size to 49 and thus changed the results in minor ways. Tables 7, 8, and 9. The important regression analysis of Table 9 involved the prediction of math gains with leadership characteristics, principal characteristics and school characteristics. Only free or reduced lunch was a statistically significant predictor ($b = -.15$, $p = .027$). This suggested the greater the percentage of free or reduced lunch, the lower the math gains.

As shown in Table 9 the R-squared statistic was .12 indicating 12% of the variance of math gains was accounted for by this regression analysis.

CHAPTER 5

SUMMARY AND DISCUSSION

Introduction

This final chapter restates the research problem and reviews the major methods used in this study. The major sections of this chapter summarize the results and discuss their implications. This interpretation discusses how the findings relate to previous literature, discusses their implications for current practice, and concludes by describing the study's limitations and suggestions for future research.

Statement of the Problem

As explained in Chapter 1, the study reported that policy decisions implemented as a result of the reauthorization of the Elementary and Secondary Education Act and the No Child Left Behind policy directive imply that high-stakes testing will improve student learning. A policy decision established to improve student achievement directly impacts school leadership. The No Child Left Behind policy directive necessitates that principals focus their attention on student achievement data. The focus of this study was to connect policy decisions to the leadership enacted by the school leader. The school principal is key to implementing policy decisions established by the federal government (Leithwood and Jantzi, 1999). Therefore, the principal becomes important in ensuring the success of

the school reform movement. Focusing on the nature of school leadership addresses a significant research need in the area of educational leadership.

This dissertation study was conducted in Arizona to determine the effect of secondary principal leadership on the success of students on the AIMS. The AIMS test is a formative assessment aligned to the Arizona state standards. The assessment was developed by Arizona educators and assigns a performance level descriptor to describe the general performance of a student within a performance range. The performance level descriptors for the AIMS test are falls far below, approaches the standard, meets the standard, and exceeds the standard.

Students who score in the falls far below level may have significant gaps and limited knowledge and skills that are necessary to satisfactorily meet the state's reading, math, and writing standards. Students will usually require a considerable amount of additional instruction and remediation in order to achieve a satisfactory level of understanding.

Students who score in the approaches the standard level show partial understanding of the knowledge and application of the skills that are fundamental for proficient work. Students who approach the standard possess some understanding and skills necessary to begin working on the content required of the student who meets the standards. Due to incomplete understanding, additional instruction and remediation may be necessary in order to achieve a satisfactory level of achievement.

Students who score in the meets the standard level demonstrate a solid academic performance on subject matter as reflected by the reading, math, and writing standards.

Students who perform at this level are prepared to begin work on materials that may be required for the next grade level. Attainment of at least this level is the goal for all students.

Students who score in the exceeds expectation level illustrate a superior academic performance as evidenced by achievement that is substantially beyond the goal for all students. Students who exceed the standard have demonstrated exceptional and exemplary attainment of knowledge and skills.

In addition to the general performance level descriptors listed below, there are specific descriptors at each grade level. These descriptors indicate some of the knowledge and skills a student may demonstrate on the AIMS.

In this study, high student achievement is defined as obtaining a performance level descriptor of meets or exceeds standard. The performance level descriptors of meet and exceed the standard meet the Arizona criteria for students demonstrating high student achievement. This study examined the relationship between student achievement and the leadership characteristics of the school principal.

Research Design and Procedures

This study utilized a two-step process to analyze data. The first analysis was the calculation of a Pearson product moment correlation. This was done to determine the general relationship between achievement gains as measured by AIMS test data and leadership style or characteristics without controlling for any intervening variables. The second step utilized a standard multiple regression to determine the effect of the

extraneous variables, which included principal gender, number of years in the position of principal, ethnicity and educational level of the principal. The basic dependent variable for analysis was reading, writing and math gains. High student achievement is defined as meets or exceeds standards. Low achievement is defined as falls far below standards. By controlling for the extraneous variables listed above, the researcher was able to focus on the coefficient of leadership style or characteristic as well as discuss independent impacts of other school and principal characteristics while controlling for leadership style.

The source of data for this study was individual high school AIMS results published on the Arizona Department of Education website. AIMS school data for the school year 2003 and 2004 were retrieved from the Arizona Department of Education website for reading, writing, and mathematics. Survey data were collected from Arizona secondary high school principals. The following questions were asked to develop background characteristics for the school principals surveyed: How many years have you been in the position of principal? What is your ethnicity? What is your highest level of education? How many years have you been in your present school? What is your gender? What is your age? This information was placed into an Excel file. The Nature of School Leadership Survey as modified by Lucas and Valentine (1999) was utilized to collect information as to principal leadership characteristics. The leadership characteristics identified were providing vision, modeling appropriate behavior, fostering a commitment to goals, providing individualized support, providing intellectual stimulation, and holding high expectations. These characteristics were further divided into two constructs: leadership of people and leadership of purpose. Cronbach alpha

reliability scores were assigned to each characteristic assessed on the Principal

Leadership Questionnaire, which were providing vision (.894), modeling appropriate

behavior (.899), fostering commitment to goals (.804), providing individualized support

(.844), providing intellectual stimulation (.917), and holding high expectations (.755).

Each of the twenty four questions asked on the Principal Leadership Questionnaire

related to one of the characteristics of leadership listed above.

The target population chosen for this study included all public high school

principals in the state of Arizona. The sample provided results that are generalizable to

principals in the Southwest. This sample was chosen as a result of limited research done

in the secondary school environment on principal leadership characteristics. Data

regarding principal gender, number of years in the position, ethnicity, and educational

level of the principal were also collected by utilizing information collected from the

Arizona Department of Education website as well as information collected from each

school's School Report Card.

<div align="center">Hypotheses</div>

The following research hypotheses were tested in this study:

Ho1. There is no statistically significant relationship between leadership

characteristics as defined by The Nature of School Leadership Survey and high student

achievement as measured by the AIMS.

Ho2.   There is no statistically significant relationship between leadership

characteristics as defined by The Nature of School Leadership Survey and high student

reading achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho3. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student writing achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho4. There is no statistically significant relationship between leadership characteristics as defined by The Nature of School Leadership Survey and high student math achievement gains as measured by the AIMS, controlling for principal gender, number of years in the position of principal, ethnicity, and educational level.

Ho5.   There is no statistically significant relationship among leadership characteristics, principal characteristics, and student achievement gains in reading, writing, and math controlling for leadership characteristics.

Summary of Key Findings

Because this study was correlational in design and utilized point-in-time data from 2003 and 2004 school years, one cannot infer causality from the regression results. However, this study does provide clear evidence that leadership characteristics have a significant effect on student achievement.

Even though no statistically significant relationships between student achievement and leadership characteristics were demonstrated between leadership styles and achievement (Table 2), intercorrelations among leadership characteristics suggested statistical significance that principals who provide vision tend to model appropriate

behavior. Data also suggested that principals who provide vision also tend to model appropriate behavior and foster commitment to goals. This illuminates the relationship among leadership characteristics and validates the research conducted by Smith and Andrews (1989), which indicated that increases in student achievement do not occur in isolation. The principal's role is critical to the improvement process through communicating the vision of the school as well as developing relationships with his or her staff. The intercorrelation of leadership styles suggests that leaders who have the ability to demonstrate multiple leadership styles may have a greater opportunity to achieve higher student achievement in their schools.

This study also revealed an interesting finding when the six leadership characteristics and reading achievement gains were computed. None of the leadership characteristics was statistically significant in the regression analysis for reading gains as the dependent variable. However, when controlling for principal characteristics, principal ethnicity was significant for math achievement gains. This finding was repeated when computing the six leadership characteristics to predict mathematics gains by controlling for principal characteristics. This suggests that principal ethnicity as a characteristic may impact the culture of the school and the collaborative relationship between the principal and teacher. This evidence supports the research conducted by Fullan (1999), which indicates that as principals and teachers work collaboratively, they develop stronger instructional strategies and that these strategies enhance student achievement. At the same time, stronger professional communities develop enabling the ability to provide more social support for learning (Fullan, 1999).

When reading gains were analyzed with leadership characteristics, principal characteristics, and school characteristics, the results were statistically significant. School size was related negatively to reading gains and free or reduced lunch was related negatively to reading gains. This suggests that the larger the school, the lower the reading gain and the higher the percent of free or reduced lunch, the lower the reading gain. Bracey (2001) concludes that in schools with fewer than 400 students, teachers report that they and their colleagues assume more responsibility for student learning. Bracey (2001) concludes that students attending smaller schools also learn more mathematics and that school size directly affects student achievement. In small schools there appears to be more intimate and personal social relationships among school personnel and students. This is consistent with the data analyzed in this dissertation study. The quality and character of these relationships appear to be important factors and determinants of student learning.

No relationship was found between leadership characteristics and student achievement, but significant relationships were found among leadership characteristics. Regression analyses of reading, writing, and math gains with leadership characteristics did not reveal statistical significance. As shown in Table 4 and Table 5 regression analyses of reading, writing, and math gains controlling for principal characteristics revealed significant relationships such as ethnicity, number of years in position of principal, number of years at present school, and gender. Regression analyses of reading, writing, and mathematics gains, controlling for leadership characteristics,

principal characteristics and school characteristics reveals significant relationships with school size and free lunch.

The analysis entailed the use of data comprehensive of leadership characteristics, principal characteristics, and school characteristics.   In addition to Pearson correlations, multiple regression analyses were performed.   Second, student achievement data were measured using reported data that was collected over two school years. Multiple-year data provides for a more thorough analysis of data. Third, the unit of analysis was at the school level. School level analysis allows for valid comparisons between schools and provides the ability to generalize implications of results that educational leaders can utilize for decision making at the school level.

<div align="center">Strengths</div>

The sample size strengthens this study. Approximately 30% of secondary principals in the state of Arizona responded. Seventy respondents provided for a large sample population of school administrators.   In addition, the study focuses on principal leadership characteristics and their impact on student success on the AIMS test. This information is timely, as the graduating class of 2006 is the first graduating class which must pass this assessment to receive a high school diploma. Additionally, the sample population in this study is representative of the state of Arizona and provides information relevant to the high-stakes testing environment within Arizona.

Lastly, the integration of control variables in the analysis for student achievement and school leader characteristics increases the reliability of the results. Past leadership studies discussed in Chapter 2 looked at principal leadership and student achievement

from a much broader perspective. Controlling for leadership style, principal characteristics, and school variables serves to augment the validity of the statistically significant relationships found between leadership characteristics and student achievement. These methodological enhancements serve to expand previous studies found in the review of related literature.

Limitations

Conversely, there are several factors that can limit predictive interpretation of the results between the relationship of student achievement and leadership characteristics. First, academic achievement was measured using point-in-time data, which may restrict inferences about predictive effects. Perhaps leadership characteristics and individual student achievement gains exist. However, looking at school-wide data limits the inferences, which may be made at the individual student level.

A third limitation involves the method of collecting leadership characteristics. Leadership characteristics were collected as a self-reported rating. An additional limitation is the failure of the survey instrument to collect data on the instructional nature of the principal's leadership.

Implications for Future Research

Future research should focus on instructional leadership as a potential variable in improving student achievement. In a study conducted in Missouri, Quinn (2002) found that several instructional leadership variables had a high degree of predictive value on academic engagement. Additional research may explore whether or not this previous research also is generalizable to principals in Arizona. To improve the reliability and

generalization of leadership characteristics on student achievement, future research should analyze changes in student achievement on multiple measures of academic achievement. Additionally, future research should focus on individual student-level data as compared to school-wide data. Future research should look at collecting data at the teacher and student level regarding perception of principal leadership as well as self-reported data. This will assist in providing additional variables to improve the reliability and generalizations of principal leadership characteristics and their effect on student achievement.

Finally, it is possible that the observed effects of principal leadership characteristics on student achievement reflect unmeasured factors such as parental structure, cultural values, and other potential contributors to improved student achievement. Future research should examine family structure and influences on the school environment, as well as collecting information from students about other educational influences outside of the school environment.

Implications for Practice

Although a single study cannot provide a sound basis for the practice of leadership, this study and other studies with similar findings would suggest that principals should understand that certain leadership characteristics and their development may effect student achievement. Previous studies have noted significant variance in measured performance suggesting that the school principal plays a role in the academic performance of the school (Andrews & Soder, 1987; Lezotte & McKee, 2002; Quinn, 2002).

As the implications of the No Child Left Behind legislation develop, the involvement of principals in the improvement of student achievement is crucial. Principals are seen as the catalyst for creating change at the school site. In the area of academic accountability it becomes even more important to identify those individuals that may become effective principals. Schools hiring new principals would do well to develop rubrics, which identify applicant relationships to the six leadership characteristics identified in this study. As suggested in this study, certain principal characteristics are statistically significant in improved student achievement. It is critical that the screening processes utilized this as one component of candidate selection.

The type of leadership that a principal uses makes an impact on student success. Quinn (2002) suggests that principals who have solid instructional leadership skills have the most direct influence on student achievement. This suggestion supports the data collected in this study. Providing vision, modeling appropriate behavior, fostering a commitment to goals, providing individualized support, providing intellectual stimulation, and holding high expectations all represent transformational leadership qualities, which are embedded in leadership. Principals should use the research from effective schools, teacher effects, organizational change, and staff development to inform their practice. This will assist principals in understanding why improvement approaches work differently in a variety of contexts. Therefore, principal professional development activities should be inclusive of the skills and characteristics suggested in this study and others that improve student achievement.

As suggested by this study, student achievement gains appeared to be lower in schools with higher populations of students on free and reduced lunch. Future research should look at how instructional leadership differs according to the socioeconomic status of the school community and other variables, such as school size and complexity. Staff development opportunities that limit the principal's ability to adapt research findings to their own settings should also be examined in future research.

Summary

Regression analyses of reading, writing, and math gains controlling for principal characteristics revealed significant relations such as ethnicity, number of years in the position of principal, number of years at present school, and gender. Regression analyses of reading, writing, and mathematics gains, controlling for leadership characteristics, principal characteristics and school characteristics revealed significant relationships with school size and free lunch. These findings provide empirical evidence of a relationship between leadership characteristics and student achievement. As expected, ethnicity, school size, and free lunch variables related strongly to leadership characteristics and student achievement. These particular findings were compatible with prior research that suggested that principals have an effect on student achievement (Andrews & Soder, 1987; Quinn, 2002).

This research study suggests that principals should focus their attention on developing the six characteristics of leadership: providing vision, modeling appropriate behavior, fostering commitment to goals, providing individualized support, providing intellectual stimulation, and holding high expectations. Districts should consider a

commitment to the development of principal trainings fostering growth in the identified characteristics. Therefore, focused attention on the research in the area of principal leadership must be examined and continued to identify for leaders the skills necessary to meet the expectations of the 21st Century of learners.

Although this study found that a significant relationship exists between leadership characteristics and academic achievement, it does not address the issue of how to narrow the variables that have the most impact on student achievement. Future studies should focus on isolating the leadership characteristics that impact student achievement. This information would be useful in the development of principal leaders. The findings of this study and prior research studies on principal leadership are guiding leaders in a direction to uncover the answer of how to improve student achievement in the school environment.

APPENDIX A: PRINCIPAL BACKGROUND SURVEY

1. How many years (including this one) have you been in the position of principal?

___ 1 to 2 years

___ 3 to 5 years

___ 6 to 10 years

___ 11 to 15 years

___ 16 to 18 years

___ 19 + years

2. What is your ethnicity?

___ Caucasian

___ Hispanic

___ African-American

___ Asian

___ Other

3. What is your highest level of education?

___ Masters Degree

____ Doctorate Degree

4. How many years have you been at your present school?

___ 1 to 2 years

___ 3 to 5 years

___ 6 to 10 years

___ 11 to 19 years

___ 19 + years

5. Your gender: (please check)
___ female

___ male

6. Your age: (Please Check)

___ less than 35 years

___ 35 to 39 years

___ 40 to 44 years

___ 45 to 49 years

___ 50 to 54 years

___ more than 54 years

APPENDIX B: PRINCIPAL LEADERSHIP QUESTIONNAIRE

Please answer the following questions by considering how well the statements apply to your actions in relation to work with the school's faculty. Use this scale to answer the following questions:

Rate each statement on the following scale:

1=Strongly Disagree   2=Disagree   3=Agree   4=Strongly Agree

		Strongly Disagree	Disagree	Agree	Strongly Agree
1.	I have both the capacity and judgment to overcome most obstacles.				
2.	I command respect from everyone on the faculty.				
3.	I excite faculty members with visions of what we may be able to accomplish if we work together.				
4.	I make faculty members feel and act like leaders.				
5.	I give the faculty a sense of overall purpose for its leadership role.				
6.	I lead by "doing" rather than simply by "telling."				
7.	I symbolize success and accomplishment within our profession.				
8.	I provide good models for faculty members to follow.				
9.	I provide for our participation in the process of developing school goals.				
10.	I encourage faculty members to work toward the same goals.				
11.	I use problem solving with the faculty to generate school goals.				
12.	I work toward whole faculty consensus in establishing priorities for team goals.				
13.	I regularly encourage faculty members to evaluate our progress toward achievement of team goals.				
14.	I provide extended training to develop teachers' knowledge and skills relevant to being a member of the school faculty.				
15.	I provide the necessary resources to support teachers' implementation of the school program.				
16.	I treat faculty members as individuals with unique needs and expertise.				
17.	I take faculty opinions into consideration when initiating actions that affect their work.				
18.	I behave in a manner thoughtful of teachers' personal needs.				
19.	I challenge faculty to reexamine some basic assumptions they have about their work at the school.				

20.	I stimulate faculty to think about what they are doing for the school's students.
21.	I provide information that helps faculty think of ways to implement the school program.
22.	I insist on only the best performance from the school faculty.
23.	I show everyone that there are high expectations for the faculty as professionals.
24.	I will not settle for second best in the performance of our work as a faculty.

Factor	Factor Name	Items	Cronbach Alpha Reliability (1996)
PV	Provides Vision	1, 2, 3, 4, 5	.894
MB	Models Appropriate Behavior	6, 7, 8,	.899
FC	Fosters Commitment to Goals	9, 10, 11, 12, 13	.804
IS	Provides Individualized Support	14, 15, 16, 17, 18	.844
NS	Provides Intellectual Stimulation	19, 20, 21	.917
HE	Holds High Expectations	22, 23, 24	.755

APPENDIX C: MEMO TO SUBJECTS

Title of Project: Do Principal Leadership Characteristics Affect Student Success on the Arizona Instrument to Measure
Standards?

You are being invited to voluntarily participate in the above-titled research study. The

purpose of the study is to determine the principal's affect on the success of students on

the Arizona Instrument to Measure Standards. You are eligible to participate because

you have been identified as a 9-12 grade secondary principal

If you agree to participate, your participation will involve the completion of a survey

questionnaire about leadership characteristics. The completion of the survey

questionnaire will take approximately ten minutes. Your name will not appear on the

survey questionnaire.

You may withdraw from the study at any time. There are no known risks from your

participation and no direct benefit from your participation is expected. There is no cost to

you except for your time and you will not be compensated.

Only the principal investigator and his advisor will have access to the information that

you provide. Your name will not be collected on any study forms. In order to maintain

your confidentiality, your name will not be revealed in any reports that result from this

project. The information will be locked in a secure place.

You can obtain further information from the principal investigator, (Richard Faidley,

Educational Doctorate candidate, at (520)-579-4427. If you have questions concerning

your rights as a research subject, you may call the University of Arizona Human Subjects

Protection Program office at (520)-626-6721.

By participating in completion of the survey questionnaire, you are giving permission for

the investigator to use your information for research purposes.

Thank you.

_____

Richard Faidley

APPENDIX D: DATA TABLES 1-9

Table 1

Descriptive Statistics

	N	Pct.
1. How many years (including this one have you been in the position of principal?		
1 to 2 years	13	18.6
3 to 5 years	23	32.9
6 to 10 years	20	28.6
11 to 15 years	4	5.7
16 to 18 years	4	5.7
19+ years	6	8.6
2. What is you ethnicity?		
Caucasian	62	88.6
Hispanic	8	11.4
African-American	--	--
Asian	--	--
Other	--	--
3. What is your highest level of education?		
Masters Degree	54	77.1
Doctorate Degree	16	22.9
4. How many years have you been at your present school?		
1 to 2 years	16	22.9
3 to 5 years	25	35.7
6 to 10 years	17	24.3
11 to 19 years	10	14.3
19+ years	2	2.9
5. Your gender		
Female	42	60.0
Male	28	40.0
6. Your Age:		
Less than 35 years	1	1.4
35 to 39 years	7	10.0
40 to 44 years	15	21.4
45 to 49 years	11	15.7
50 to 54 years	20	28.6
More than 54 years	16	22.9

Table 2
Correlations of Leadership Styles and Achievement

Achievement	Vision	Models	Fosters	Supports	Intellectual	Expectations
Reading 2003	.094	.128	.039	-.001	-.102	-.186
Writing 2003	.142	.157	.079	-.035	-.140	-.177
Math 2003	.067	.086	.009	.066	-.133	-.120
Reading 2004	.103	.111	.043	-.025	-.149	-.158
Writing 2004	.156	.164	.054	-.086	-.119	-.179
Math 2004	.080	.100	-.011	.044	-.134	-.082
Reading Change	.058	-.012	.023	-.074	-.178	.027
Writing Change	.025	.010	-.064	-.123	.059	.004
Math Change	.047	.055	-.043	-.030	-.037	.049

* $p < .05$

<u>Note</u>. Reading, Writing, and Math meets or exceeds standards.
Vision = Provides Vision; Models = Models Appropriate Behavior; Fosters = Fosters Commitment to Goals; Supports = Provides Individualized Support; Intellectual = Provides Intellectual Stimulation; Expectations = Holds High Expectations.

Table 3
Intercorrelation of Leadership Styles

	1	2	3	4	5	6
1.Vision	1.00	.601**	.549**	.268**	.328**	.456**
2.Models		1.00	.380**	.123	.270*	.399**
3.Fosters			1.00	.396**	.425**	.398**
4.Supports				1.00	.229	.309**
5.Intellectual					1.00	.448**
6.Expectations						1.00

Table 4

Regression of Six Leadership Characteristics controlling six Principal Characteristics with Reading Gains as Dependent Variable

Variable	No Control		Principal	
	b weights	p	Controls	p
Leadership Characteristics				
1.Vision	3.02	.511	3.08	.484
	(4.57)		(4.38)	
2.Modeling	-1.90	.600	-4.58	.189
	(3.61)		(3.44)	
3.Commitment	2.09	.531	4.74	.125
	(3.31)		(3.04)	
4.Support	-2.85	.416	-5.35	.107
	(3.48)		(3.27)	
5Stimulation	-6.04	.068	-4.41	.149
	(3.25)		(3.02)	
6.High Expectations	2.11	.425	2.29	.349
	(2.64)		(2.43)	
Principal Characteristics				
1.Years in Position			.35	.120
			(.22)	
2.Ethnicity			11.38	.002
			(3.49)	
3.Education			4.09	.125
			(2.63)	
4.Years School			-.20	.371
			(.22)	
5.Gender			3.27	.169
			(2.34)	
6.Age			-.30	.092
			(.17)	
Constant	10.31		13.24	
	(15.07)		(16.64)	
Summary Statistics				
Adjusted R2	-.02		.19	
Observations	70		70	

Table 5

Regression of Six Leadership Characteristics controlling six Principal Characteristics with Writing Gains as Dependent Variable

Variable	No Control		Principal	
	b weights	p	Controls	p
Leadership Characteristics				
1.Vision	2.82	.600	.68	.896
	(5.35)		(5.18)	
2.Modeling	-.57	.893	-2.27	.579
	(4.22)		(4.07)	
3.Commitment	-2.42	.534	.11	.977
	(3.87)		(3.59)	
4.Support	-3.85	.349	-5.45	.164
	(4.07)		(3.86)	
5.Stimulation	2.75	.472	3.41	.343
	(3.80)		(3.56)	
6.High Expectations	.08	.979	-.30	.916
	(3.09)		(2.87)	
Principal Characteristics				
1.Years in Position			.39	.134
			(.26)	
2.Ethnicity			2.51	.544
			(4.12)	
3.Education			2.74	.382
			(3.10)	
4.Years School			-.83	.002
			(.26)	
5.Gender			5.90	.038
			(2.77)	
6.Age			-.18	.382
			(.20)	
Constant	-2.26		12.29	
	(17.63)		(19.67)	
Summary Statistics				
Adjusted R2	-.06		.14	
Observations	70		70	

Table 6

Regression of Six Leadership Characteristics controlling six Principal Characteristics with Math Gains as Dependent Variable

Variable	No Control		Principal	
	b weights	p	Controls	p
Leadership Characteristics				
1. Vision	2.00	.719	3.32	.569
	(5.52)		(5.80)	
2. Modeling	1.07	.807	-2.17	.637
	(4.36)		(4.56)	
3. Commitment	-2.10	.602	-.29	.943
	(4.00)		(4.03)	
4. Support	-.82	.846	-1.28	.768
	(4.20)		(4.33)	
5. Stimulation	-1.57	.691	1.14	.777
	(3.93)		(4.00)	
6. High Expectations	1.50	.639	1.96	.544
	(3.19)		(3.21)	
Principal Characteristics				
1. Years in Position			.36	.227
			(.29)	
2. Ethnicity			10.93	.021
			(4.62)	
3. Education			-2.26	.519
			(3.48)	
4. Years School			-.03	.905
			(.29)	
5. Gender			.94	.762
			(3.10)	
6. Age			-.19	.417
			(.23)	
Constant	2.16		-9.25	
	(18.20)		(22.05)	

Summary Statistics

Adjusted R2	-.08		-.03	
Observations	70		70	

Table 7. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Reading Gains as Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1.Vision	1.53 (7.45)	.838	5.51 (7.21)	.450	4.28 (5.67)	.456
2.Modeling	-2.03 (4.91)	.682	-3.85 (4.54)	.403	-5.26 (3.60)	.153
3.Commitment	1.84 (4.36)	.675	4.50 (3.92)	.259	3.18 (3.10)	.312
4.Support	-3.22 (4.85)	.511	-6.43 (4.42)	.155	-5.55 (3.51)	.123
5.Stimulation	-6.66 (4.76)	.169	-4.25 (4.40)	.341	-3.79 (3.46)	.281
6.High Expectations	1.56 (3.13)	.621	1.14 (2.81)	.688	2.17 (2.22)	.333
Principal Characteristics						
1.Years in Position			.346 (.28)	.223	.371 (.22)	.103
2.Ethnicity			11.65 (4.54)	.015*	6.85 (3.76)	.077
3.Education			5.86 (3.56)	.108	2.83 (3.04)	.358
4.Years School			-.33 (.28)	.250	-.27 (.22)	.239
5.Gender			2.76 (3.22)	.399	3.99 (2.60)	.134
6.Age			-.42 (.24)	.090	-.13 (.20)	.515
School Characteristics						
1.School Size					-2.52 (1.04)	.021*
2.Free Lunch					-.25 (.05)	.000*
Constant	20.39 (23.39)		16.42 (23.59)		29.42 (18.74)	
Summary Statistics						
Adjusted R2	.07		.19		.50	
Observations	49		49		49	

* Statistically Significant.

Table 8. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Writing Gains as Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1.Vision	11.55 (8.79)	.196	11.61 (8.14)	.162	11.43 (8.34)	.180
2.Modeling	-1.19 (5.79)	.839	-3.52 (5.13)	.496	-3.73 (5.29)	.528
3.Commitment	-4.15 (5.14)	.425	-1.31 (4.43)	.770	-1.36 (4.55)	.768
4.Support	-7.37 (5.73)	.205	-7.83 (4.99)	.126	-7.44 (5.15)	.158
5.Stimulation	5.37 (5.62)	.345	7.83 (4.96)	.123	8.01 (5.09)	.125
6.High Expectations	-2.25 (3.69)	.546	-3.28 (3.17)	.307	-3.17 (3.26)	.337
Principal Characteristics						
1.Years in Position			.69 (.32)	.036*	.66 (.33)	.049*
2.Ethnicity			3.26 (5.12)	.528	2.36 (5.53)	.673
3.Education			3.58 (4.01)	.378	4.15 (4.46)	.359
4.Years School			-.89 (.32)	.008*	-.88 (.33)	.010*
5.Gender			7.95 (3.64)	.036*	8.46 (3.83)	.034*
6.Age			-.48 (.27)	.087	-.44 (.29)	.142
School Characteristics						
1.School Size					-.91 (1.53)	.558
2.Free Lunch					-.02 (.08)	.806
Constant	-11.67 (27.60)		.36 (26.63)		.97 (27.54)	
Summary Statistics						
Adjusted R2	.05		.27		.23	
Observations	49		49		49	

* Statistically Significant

Table 9. *Regression of Six Leadership Characteristics Controlling Six Principal Characteristics, Two School Characteristics with Math Gains as the Dependent Variable*

Variable	No Control b weights	p	Principal Controls	p	School Controls	p
Leadership Characteristics						
1.Vision	-1.79	.803	1.22	.874	.72	.921
	(7.11)		(7.65)		(7.13)	
2.Modeling	2.35	.618	.39	.935	-1.06	.817
	(4.68)		(4.82)		(4.52)	
3.Commitment	-2.38	.570	-.75	.858	-1.64	.676
	(4.16)		(4.16)		(3.89)	
4.Support	-.21	.964	-2.29	.629	-2.57	.563
	(4.63)		(4.69)		(4.41)	
5.Stimulation	-4.54	.323	-2.14	.649	-2.22	.614
	(4.54)		(4.67)		(4.35)	
6.High Expectations	-.11	.971	.17	.955	.69	.805
	(2.98)		(2.98)		(2.78)	
Principal Characteristics						
1.Years in Position			.29	.342	.36	.206
			(.30)		(.28)	
2.Ethnicity			9.84	.048*	8.35	.086
			(4.81)		(4.73)	
3.Education			.82	.829	-2.88	.456
			(3.77)		(3.82)	
4.Years School			-.130	.666	-.09	.742
			(.30)		(.28)	
5.Gender			2.34	.498	2.04	.536
			(3.42)		(3.27)	
6.Age			-.35	.173	-.23	.370
			(.25)		(.25)	
School Characteristics						
1.School Size					.261	.843
					(1.31)	
2.Free Lunch					-.15	.027
					(.06)	*
Constant	22.89		18.42		26.91	
	(22.30)		(25.03)		(23.54)	
Summary Statistics						
Adjusted R2	.08		-.02		.12	
Observations	49		49		49	

* Statistically Significant

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