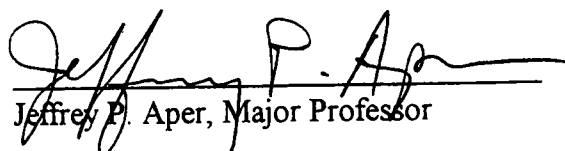
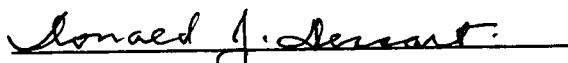


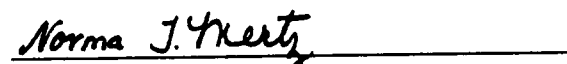
To the Graduate Council:

I am submitting herewith a dissertation written by Craig D. Rigell entitled "Leadership Behaviors of Principals and Student Achievement." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Leadership Studies in Education.


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**LEADERSHIP BEHAVIORS OF PRINCIPALS
AND
STUDENT ACHIEVEMENT**

**A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville**

**Craig DeWitt Rigell
May, 1999**

DEDICATION

This dissertation is dedicated to all of my teachers and mentors in my life. Men and women who have challenged, encouraged, corrected, and supported me, demonstrating an act of giving that I pledge to continue.

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To his parents, Elizabeth and the late Joseph S. Rigell, the writer is grateful for their love and encouragement.

The writer also sincerely wishes to acknowledge the love and support of his family. Their encouragement has enabled me to attain a major goal in my professional life

ABSTRACT

The purpose of this study was to describe the relationships between the gender of the principal, the socioeconomic composition of the school, certain behaviors of elementary school principals, and the academic gains and achievement scores of fourth grade students. A multivariate model approach was used. The intervening principal behaviors were school governance, school climate, and instructional organization. Three-year average student gain and achievement data in reading were used as measures of student outcomes. The study included schools with mid-range scores.

Data were collected for analysis from 96 schools containing the fourth grade. Schools were organized into those with three -year average student outcomes of Low Achievement-High Gain, High Achievement-High Gain, High Achievement-Low Gain, Low Achievement-Low Gain and Mid Achievement-Mid Gain student scores on an annual statewide test.

Six teachers and the principal of the schools were asked to complete the Administrative Leadership Profile (ALP) survey. The survey contained 27 questions that measured the three constructs of School Governance (GO), School Climate (SC), and Instructional Organization (IO). A multiple regression, path analysis was used to analyze the data. The grand sum of each of the three constructs was used to calculate the path coefficients for each of the variables.

Major findings of the study were: 1) There was a statistically significant ($p < .01$) positive causal relationship between the three-year average Achievement (ACH) scores of

students and the Instructional Organization (IO) of the school; 2) There was a slightly less statistically significant ($p < .05$) negative causal relationship between the gender of the principal and the instructional organization of the school; 3) There was a statistically significant ($p < .01$) slightly negative relationship between the three- year average achievement (ACH) scores of students and the school climate; 4) No statistically significant causal relationships (paths) were shown between the gain scores of students and any of the variables included in the model used in the study, and 5) The influence of School Governance (GO) on student Achievement (ACH) was not statistically significant.

TABLE OF CONTENTS

CHAPTER	Page
I. Introduction	1
Problem Statement	6
Purpose of the Study	7
Research Questions	7
Significance of the Study	9
Assumptions	11
Delimitations	11
Limitations	12
Definitions	13
Organization of the Study	14
II. Review of the Literature	15
Introduction	15
Early History	16
Effective School Era	18
The Multivariate Model	28
Summary	37
III. Research Methods	39
Introduction	39
Design of the Study	39
Population/Sample	43
Instrumentation	46
Data Collection Procedures	47
Data Analysis	49
Summary	50
IV. Findings	51
Introduction	51
Sample/Demographics	52
Reliability of Instrument	57
Treatment of Data	58
Summary	67

Page

V. Summary, Conclusions, and Recommendations	69
Introduction	69
Summary	70
Conclusions	72
Recommendations	75
Bibliography	78
Appendices	86
A. Questionnaire	87
B. Phone Dialogue	92
C. Letter to Principal	95
D. Letter to Teacher	97
E. Comparison of Respondent and Non Respondent Survey Results	99
Vita	101

LIST OF TABLES

Table	Page
1. Number of Schools Identified by TVAAS Data	45
2. Number of Schools Participating in Study	53
3. Sample Distribution	53
4. Distribution of Schools Based on Free Lunch	55
5. Gender of Principal and SEC of School	56
6. Gender of Principal and Category of School	56
7. Reliability Measures for Survey Instrument	58
8. Correlation of Variables	59
9. Principal Behaviors and Student Outcomes	63
10. Significance of Regression Coefficients	64
11. Comparison of Respondent and Non Respondent Survey Results	99

LIST OF FIGURES

Figure	Page
1. Research Model	41
2. Path Diagram	42
3. Frequency Table of Schools	45
4. Path Analysis	65

CHAPTER I

INTRODUCTION

If we work upon marble, it will perish; if we work upon brass, time will efface it; if we rear temples, they will crumble into dust; but if we work upon immortal minds...we engrave on those tablets something which will brighten to all eternity.

Daniel Webster

Twenty-one years ago when I was a young, wet behind the ears, administrative intern, a veteran principal who was in the twilight of his career took me aside and gave me some advice about how to succeed as a school principal. He told me his three secrets for administrative success: first, "take good care of the cooks and the custodians and they will take care of you; second, leave the teachers alone, they know what they are doing and you'll just get in the way; and finally, if you are happy, your staff will be happy and your students will do well. If you are tense, your staff will be tense, your students won't do well. You set the tone for the school." Each of his tips for success have had their moments in my career, but his final tip for success, about setting the tone for the school, has caused me to question what effect I do have on my students' academic performance.

"Show me a good school and I'll show you a strong leader" is a statement that has filled political and policy makers' worlds in recent decades (Crews, 1995). This comment is central to much of the effective school research done during the '80s (Andrews and Soder, 1987; Bossert et al., 1982). But what really is the impact of a

principal's behaviors on student achievement? This question has been addressed over and over in the literature since the early 1950s (Getzel, 1952; Halpin, 1957). Why then is it important to reenter an arena of research that has so often been visited? Why now? The need to revisit this question is important for three reasons. First, the ongoing national debate about education continues to build and grow. A critical focus of the debate includes concerns about student achievement. The annual National Education Goals Reports have consistently, over the past eight years, including 1998, reported that America's youth are below national expectations in academic areas such as science, math, and especially in the area of reading. The second reason to revisit this research is that policy makers and legislators are increasingly creating policy and passing legislation that reflect popular beliefs about the principal's effect on student achievement, but may not be grounded in research. Finally, extensive, longitudinal data on student academic outcomes are now available from the Tennessee Value Added Assessment System (TVAAS) program. These data provide the researcher a much larger data base on both achievement and student academic gain that, until recently, was not available to the general research community. Each of these three areas will be discussed below in further detail.

Our society's educational debate is joined at the local, state and national levels. Issues such as school safety, vouchers, and yes, even uniforms, are part of the debate. At the core of the debate is the question of student achievement.

Concern about student achievement is not new. Over the past forty years several benchmark events have occurred that raise the temperature of the national education debate and student achievement. For example, the Soviet Union's launch of Sputnik in

1957 caused our nation to become alarmed about science instruction.

The Coleman Report (1966) concluded that the American public education system needed improvement. In fact, Gordon (1972) concluded that, "hardly a month has passed in the last few years in which some article has not appeared, setting forth the author's negative evaluation of public schools. Almost without exception, researchers in the field of education find the public schools to be failing at the appointed tasks".

In 1983, the National Commission of Excellence in Education published the report, A Nation at Risk. This report concluded that unless our system of education improved our nation was at risk economically as well as militarily.

A major event that contributed to the current debate was the 1989 Governor's Education Summit in Charlottesville, Virginia. The governors of the states and the President met and established eight educational goals for the United States. From this conference came the Goals 2000 and the Educate America Act of 1994. Each year since 1990 the National Education Goals Panel has released a report entitled Building A Nation of Learners, which documents the progress toward achieving the eight national goals.

Goal number three specifically addresses areas of academic excellence:

By the year 2000, all students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign language, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.

Implied within goal three is the core skill of reading. These annual reports consistently report that our students are behind their international peers. The National Assessment of

Educational Progress (NAEP) reports that a majority of students are not measuring up to the academic goals (Mullis, Owen, and Phillips, 1990; U.S. Department of Education, 1991). During the years 1992-1994 only the state of Mississippi significantly improved their fourth grade reading scores (Goals Report, 1998).

Who is responsible? The "effective schools" research suggests that the direct responsibility for improving instruction and learning in the school falls on the shoulders of the principal (Smith and Andrews, 1989). Increasingly, policy makers and the public are also pointing the finger at the principal (Smith and Andrews, 1989).

The Education Improvement Act of 1992 in Tennessee made sweeping changes in the employment status of principals. One of the changes included an employment contract containing specified performance standards. Section 49-2-303(a)(1) also allows for non-renewal of the contract if the performance standards are not met. In other words, principals in the State of Tennessee can now lose their jobs if they do not meet specified school performance criteria in their contracts. One of the key components of the principals' contract is student achievement on the statewide standardized tests that are given each year.

Section 7 of the State of Tennessee Education Improvement Act of 1992 requires that the director of a school system use performance contracts with principals. The model contract that is being distributed and taught to school system directors across the State of Tennessee has four parts to it: Performance Contract Dimensions (six items); Performance Objectives (eleven items); State Performance Goals and Standards (five items), and the Evaluation Instrument (eleven items). Four items in the performance

objectives section deal with students' academic performance. For instance, in item number nine the principal agrees specifically, to: "improve students' academic performance." Two of the five items in the State Performance Goals and Standards contain improving student academic performance goals. Two of the eleven items in the Evaluation Instrument contain references to improving student outcomes. Item number six of the contract states: "Every grade has reflected a positive growth in each category of the Tennessee Value Added Assessment System (TVAAS)".

Not only can student test scores be linked by law to the continuation of a principal in his/her job, but students' test scores may also be linked to salaries principals are paid to do their jobs. "Principals who don't go the extra mile to improve student achievement can be hit in the pay check or even fired," is the situation that principals find themselves in several school systems across the country (The Knoxville News-Sentinel, 1998).

The third reason for reexamining the question of the effect of principal behaviors on the academic outcomes of their students is the student outcome data that are available through the Tennessee Value Added Assessment System (TVAAS). The TVAAS is a project that gathers standardized test scores from the Tennessee Comprehensive Assessment Program (TCAP). The TCAP measures student performance, grades 3 through 8, in five subject areas: Reading, Mathematics, Language Arts, Science and Social Studies. The TVAAS program provides both mean achievement scores as well as mean gain scores for individual students and for schools. This extensive, longitudinal data base, gives to the researcher a tremendous resource, a resource that can enhance the design of research studies such as this project.

In summary, there are three reasons for conducting this study. First, a vigorous national educational debate that recognizes centrality, among other things, on the acquisition of reading. Second, new legislation and policies directly affect principals. The third reason for this study is the recent availability of a more complete student data base than has previously been available to researchers. These three reasons converge together to motivate this study, a study that may shed some light on our behaviors as principals.

I. PROBLEM STATEMENT

A national debate continues to lambast public education for failing to educate the youth of America. School principals have been placed squarely in the cross hairs of this debate by policy makers and legislators who create policy and legislation that threaten the jobs of principals if students do not show academic growth. But, do principals have an effect on the academic growth of their students? Recent research on the principalship has suggested that principals' behaviors and activities do not have a direct effect on student achievement, but rather may have important indirect effects (Heck, Larsen and Marcoulides, 1990; Heck, 1992, 1993; Hallinger, Bickman and Davis, 1996; Hallinger and Heck, 1996). With the exception of Andrews and Soder (1987) and Hallinger (1996), these studies have used only achievement data to look at student outcomes. They have also examined only top and bottom schools and then generalized to schools with student outcomes in the mid-range (Heck, 1992). This dissertation contributes to this body of principal effects research by including schools in the research sample with student

outcomes categorized in terms of both student gain and student achievement, and it includes the full range of the distribution.

II. PURPOSE OF THE STUDY

The purpose of this study is to describe the relationships between the gender of the principal, the socioeconomic composition of the school, certain behaviors of elementary school principals, and the academic gains and achievement scores of fourth grade students as measured by the reading sub-test of the Tennessee Comprehensive Assessment Program (TCAP). Like other recent major research in this field of study (Heck, Larson and Marcoulides, 1990; Heck, 1992; Heck, 1993; Hallinger, Bickman and Davis, 1996), this research used a multivariate approach similar to the Bossert (1982) theoretical model described in Figure 1, Section IV of Chapter II.

III. RESEARCH QUESTIONS

Before the question can be framed, it is important to provide a brief explanation of the Bossert (1982) model and some of the terms that will be used in the questions. The Bossert (1982) model is linear and multivariate. The intervening variables of principal behaviors are placed in the middle of the model following the antecedent variables and before the dependent variable of student outcomes (see Figure 1). The antecedent variables are the gender of the principal, and the socioeconomic characteristics of the

school (number of economically disadvantaged students) are variables that are not likely to be changed by the principal. Previous research suggests that each may have an effect on reading achievement (Ortiz & Marshall, 1988; Soder, 1987; Heck, Larson and Marcoulides, 1990). The intervening variables of school governance, school climate, and instructional organization are influenced by the leadership behaviors of the principal. Leadership behaviors are understood to mean those specific policies, practices and behaviors initiated by the principal (Hallinger and Murphy, 1987). School governance refers to the manner in which the principal organizes the school for decision making. School climate are comprised of those facets in a school, organized by the principal, that shape the attitudes and behaviors of the staff and students toward education (Brookover et al., 1978; Hallinger, 1996). The instructional organization variable is the manner in which a school is organized for teaching and learning. Reading achievement for fourth grade students is measured by the average gain scores of students over three years on the Tennessee Comprehensive Assessment Program (TCAP) test, and by the average normed achievement score for each school included in the study. The TCAP test is a statewide test that is given to third through eighth graders in the spring of each school year. With these terms in mind, the following two questions guided this research:

1. What are the relationships between the gender of the principal and the socioeconomic characteristics (SEC) of the school, and the principal leadership behavior constructs of school governance, school climate, and the instructional organization, as measured by the Administrator Leadership Profile (ALP) instrument?

2. Do these variables have a significant effect on the three-year average reading gain and mean achievement scores of fourth graders on the Tennessee Comprehensive Assessment Program (TCAP) test?

IV. SIGNIFICANCE

This study was significant for several reasons. It:

- Added to the body of knowledge on the relationship between principal behaviors and student achievement.
- Expanded student outcome measurement data to include both achievement and gain scores. Most previous research used only achievement data. This study is significant because it combined both forms of student outcome data in sampling schools to be included in the study (Heck, 1998).
- Organized the research sample using data from schools in five different levels of academic gain scores. Heck (1996) observed that much of the principal effectiveness research uses data from schools with student achievement scores either below or above the expected bands of academic achievement scores, referring to this as maximum variance sampling or “outlier data”. He is critical of this approach because there is the underlying assumption that outlier results apply to schools in the midrange. This assumption may not be accurate. Heck (1992) recommends that schools with student achievement scores in the mid-range gain-band be

included in principal effectiveness research.

- May assist in identifying the ways in which principals can promote student achievement. If a relationship is suggested between a leadership behavior and improved student academic performance, then principals may consider using the behavior to improve student achievement.
- Helped policy makers formulate educational policy affecting principals that is grounded in research and not simply tied to current policy preferences or popular opinion. Policies grounded in research can give long-lasting direction and support to efforts that may be really effective, not just politically popular, to improve student achievement.
- Enhanced the meaningfulness and validity of evaluations of principals. Formulating principal evaluation criteria through research will enable principals to set meaningful improvement goals and have a positive effect on student achievement. The results may then be used to confirm criteria used to evaluate principals.
- Provided direction for principal preparation programs. Principal preparation programs that are dedicated to graduating well-prepared principals for the schools of the next millennium must reflect effective research findings in their curriculum.

V. ASSUMPTIONS

This research began at a point in the body of principal effects studies that required several assumptions by the researcher. Therefore, a declaration of the assumptions that underlie this research is important to understanding the findings.

This study assumed:

- That the principal was responsible for providing the instructional leadership in elementary schools.
- That the Tennessee Comprehensive Assessment Program (TCAP) test data and Tennessee Value Added Assessment System (TVAAS) gain scores in fourth grade reading were reasonable measures of student gains and achievement.
- That principals who have been at a school four years will have had enough time to have an effect on the variables that were being measured.

VI. DELIMITATIONS

This study is delimited by several important factors that help to frame this research.

First, the study is limited to men and women who have served for at least the last four years as the principal of a single public elementary school in Tennessee. Most of the recent studies (Heck, 1996, Hallinger, 1996) use a three-year time frame as a standard for their research. Using a four-year service guideline in this study exceeds most current

research in this area of study and insures that the principal worked at the school during the same time frame represented by the data.

Six teachers in each school, randomly selected by the principal, individually completed the survey instrument. The Administrative Leadership Profile (ALP) was used as the core survey instrument to measure leadership behaviors and activities. Surveying six teachers in each school is a strategy supported in other studies on principal behaviors and student achievement. If the principal and four teachers responded, then the school data were included in the study (Heck, 1996; Hallinger, 1996).

Student outcomes were measured using data obtained from the Tennessee Value Added Assessment System (TVAAS). TVAAS gain data are available for all school's in Tennessee for grades three through eight, in math, science, reading, language, and social studies. The three-year average gain and achievement scores from 1994-97 in 4th grade reading for schools were used for the sample in this study.

VII. LIMITATIONS

There are several limitations that should be explained to help give definition to this research. First, the variables that are used in this study are based on previous theory and research. There are numerous other variables that might affect student academic achievement that are beyond the scope of this study. These include central office support, the culture of the community, the expectations of the board of education for the building principal, the school plant, the abilities of individual teachers, or the school size.

A second limitation of the study was reflected in the design of the study. Data that were collected were not observed by the researcher, but were self-reported by the principal and randomly selected teachers in the school. The teachers participating in the study were expected to be randomly selected by the principal. Not all staff members in a school completed a survey. No qualitative research techniques involving individual or group interviews or observations were used.

This research also rested on an assumption that the principal is responsible for providing the instructional leadership in a school. It was not part of the purview of this study to examine other personnel within the school who may also provide instructional leadership. For instance, at large schools, assistant principals or team leaders might provide instructional leadership. This study only examined the instructional leadership behaviors and activities of the school principal.

Finally, there are certainly valid and reliable indicators of student progress other than the scores of the students on a standardized test. Using only standardized tests to measure student outcomes limits the way educators and researchers view their students. Other performance-based assessments can provide useful information about our students' progress. However, to use such data was beyond the design of this study..

VIII. DEFINITIONS

Leadership Behaviors - those specific policies, practices, and behavior initiated by the principal (Hallinger and Murphy, 1987).

School Governance - refers to the manner in which school organizes itself for decision making.

School Climate - comprises those facets of a school that shape the attitudes and behaviors of staff and students toward instruction. (Brookover et al., 1978; Hallinger et al., 1996).

Instructional Organization - refers to the manner in which a school organizes opportunities of learning and teaching (Bossert et al., 1982; Hallinger, 1992).

IX. ORGANIZATION OF THE STUDY

This study is separated into five chapters. Chapter I contains the introduction, statement of the problem, purpose of the study, significance of the study, the research question, assumptions, delimitations, limitations, definitions, and organization of the study. Chapter II contains a review of the related literature and research on behaviors of the principal, gender of the principal, socio-economic characteristics of the school and their effects on student achievement. Chapter III contains the discussion of the research methods. Chapter IV reports the Findings. Finally, Chapter V, presents a summary and conclusions, and recommendations for future research.

CHAPTER II

REVIEW OF THE LITERATURE

The most tangible and indispensable characteristic of effective schools is strong administrative leadership, without which the disparate elements of good schooling can neither be brought together nor kept together.

R. Edmonds

I. INTRODUCTION

The body of research examining the role of school principal in the school is very large. Hundreds of studies have been done over the years. The size of this body of work requires that this review take a more selective approach than would be possible if the body of work was not as large. With this in mind, this literature review will include the critical studies of the early years of the 1950s to the 1980s that help to frame this study. A more detailed discussion will be given to the review of research during the early eighties, and the emerging effective schools research of that time that relates to principal behavior and student achievement. Research on the multivariate theoretical model is reviewed. The recent research of the '90s will be reviewed in depth in order to establish a clear foundation and direction for this study. Another section of this review of research will include studies that relate to the two contextual variables chosen for this study and how they might influence student achievement. Finally, a short summary is provided.

II. EARLY HISTORY

The organized and systematic approach to the study of the behavior of school administrators began in the early 1950s. Getzel (1952) published the "Psycho-Sociological Framework for the Study of Educational Administration". In this publication he offered a theoretical model that posited that administrative behavior in an organization was the result of the expectations of the institution, and the personality of the individual subject to some influence from environmental conditions (Boyan, 1982). Getzel's work was considered instrumental in constructing a useful theory of administration for researchers to use (Lipham, 1964).

Halpin (1957) published the "Paradigm for the Research on Administrative Behavior". This work proposed the paradigm that the school administrator determined the tasks that he should do based on three sets of variables. Administrator's actions could be explained through personal traits, intra-organizational and extra-organizational influences. This paradigm was to reappear almost twenty-five years later in the work of Bossert (1982) and will be discussed later in this chapter.

Building on this theory, Halpin and Croft (1963) selected 71 schools from six different regions in the United States. Teachers and principals in these 71 schools were asked to complete an instrument call the Organizational Climate Description Questionnaire that Halpin and Croft had prepared. As a result of this study Halpin and Croft were able to profile six different types of what they called organizational climates. If viewed as a continuum, they range from closed through paternal, familial, controlled, autonomous and

open. This early study introduced the concept of organizational climate and its relationship to leadership that will provide yet another strong theoretical link to the understanding of administrative behavior.

Yet another important early study was conducted by Hemphill, Griffiths and Fredricks (1962). This was considered for its day to be the most comprehensive study of administrative behavior and personality of its time (Lipham, 1964). This study used an "in-basket" activity approach with a large number of school principals (N =232). The activities were designed to simulate work situations normally found in a school. Other data such as cognitive ability, knowledge, personality interests and values were also collected on the principals in the study. Eight factors describing the principal's performance on the activities were identified. Four factors were associated with a high performance rating of principals both by their superiors and subordinates. The four positive correlated factors were exchanging information, maintaining relationships, preparing for discussions, and amount of work. Four other factors were found to be negatively associated with their performance rating. These four negative correlated factors were discussing before acting, complying with suggestions, analyzing the situation, and directing others. From these data principals could be differentiated into those that accomplished a significant amount of work in a given time and those that placed emphasis on planning for future decisions or acting on immediate problems. As a result of this research the characteristics of an effective principal were identified as: decisive, hardworking, a person who kept in close communication with the people he works with, and a person who performs as an information clearinghouse.

Erickson (1967) characterized the research during this time as representing an "immature field". He predicted that the most useful research in the future would be conducted by the "research-theorists" who would reject the simplistic models of school administration used up to that time and begin to design research that included the "more complex combinations of related variables". Lipham (1964) characterizes the studies in this era as "focused upon behavioral antecedents, rather than upon behavior per se or upon behavioral outcomes" (p.446). Behaviors of school administrators could be explained within the context of three types of influences: personal, intra-organizational, and extra-organizational. Researchers saw principal behaviors as dependent on other influences, some independent of the administrator (Erickson, 1967).

III. EFFECTIVE SCHOOL ERA

In response to this air of negativity about public education, researchers began to focus on identifying the characteristics of schools that were successful. The effective schools research is an important body of work that spanned almost 15 years (Stallings, 1985). Researchers involved in the effective schools research studied a wide variety of topics. Instructional strategies, effective use of time, classroom management, basic skills, expectations, and basic lesson design were just some of the content included in the body of effective schools research (Stallings, 1985). As researchers learned about the characteristics of effective schools, their research also suggested insights about the influence of the school principal in effective schools.

Weber (1971) studied successful reading programs in four inner-city elementary schools during the 1970 -1971 school year. One of the schools was located in Los Angeles, one in Kansas City and two in New York City. Data were collected through questionnaires. Common factors between the schools were identified. Weber concluded that the general failure of students in inner-city schools to acquire appropriate reading skills was the fault of the school, not of the children or their backgrounds. Several of the key factors that he found in common in successful inner-city elementary schools were high expectations, a quiet pleasant learning atmosphere, additional reading instructors, evaluation of student progress, individualized instruction, and the tone the principal set in the school. All of these factors contributed to above average scores on standardized reading tests. Weber thus associated principal behavior in setting the tone for the school with the reading achievement of students.

Another key piece of research that suggested that the principal played a role in effective schools was a study done by Lezotte and Brookover published in 1977. This Michigan study did an analysis of eight elementary schools. Six of the schools were identified as having improving student achievement and two schools were identified as having declining student achievement. Data were collected through personal interviews and questionnaires. Brookover and Lezotte identified eight characteristics of schools with improving student achievement:

1. Staff placed more emphasis on basic reading and mathematics objectives than they did in schools with declining student achievement;
2. Staff were less satisfied with student achievement than their counterparts in schools with declining achievement;

3. Parent-initiated contact was more prevalent in schools with declining student achievement;
4. Staff tended to accept responsibility for accountability as measured by criterion reference tests;
5. Staff in improving schools believed they could make a real difference in student learning regardless of student's home background;
6. Staff believed that most of their students would finish high school;
7. Staff and principals believed that all students can master basic learning objectives;
8. Principals tended to exert more leadership in the areas of instruction, discipline, and evaluation of student performance, (Brookover and Lezotte, 1977)

The importance of the school principal again was identified as one of the key factors contributing to an effective school.

Bossert (1985) concluded that there were five key common factors that as a result of the effective schools research could be identified with successful schools. The first was a school climate conducive to learning, which was defined as an environment free from discipline problems and vandalism. The second factor was the expectation among teachers that all students can learn. The third common factor associated with effective schools was an emphasis on basic skills instruction and high levels of time-on-task. The fourth factor was that effective schools had a system of instructional objectives for monitoring and assessing their students performance. The fifth and final factor was that the principal was a strong programmatic leader who set school goals, maintained student discipline, frequently observed classrooms and created incentives for learning. Bossert (1985) is

clear in his summary of effective schools research that the principal is a key element in an effective school.

The body of effective schools research showed the effective principal to be goal-oriented. For example, this meant setting instructional goals for the school, developing performance standards for the school, as well as believing all students can learn. Effective principals were also leaders in their district, had strong knowledge of the curriculum and instruction and worked hard to maintain the support of the parents and the local community. The principal helped to instill a sense of pride among teachers, students and parents. Effective schools research showed that effective principals devoted more time to coordination and management of instruction than ineffective principals. They observed their teachers in the classroom and discussed instructional problems with their teachers. Evaluation procedures were in place that assessed both teacher and student performance. Effective principals set standards to ensure school-wide improvement (Bossert, 1985).

The general conclusion from effective schools research was the old saying "effective principal, effective school" or as Edmonds (1979) described it... "one of the most tangible and indispensable characteristics of effective schools is strong administrative leadership, without which the disparate elements of good schooling can neither be brought together nor kept together" (p.35).

The effective schools research seemed to establish the role of the principal as the instructional leader. In this role the principal of an effective school was viewed as a strong proponent of instructional improvement. Effective schools research suggested that powerful principal leadership was one of the factors that made a difference in student

academic achievement (Brookover and Lezotte, 1979; Rutter, Maugham, Mortimore, Ouston, and Smith, 1979; Edmonds, 1979).

Spurred on by the findings in the effective schools research, some researchers began to design studies that focused directly on the role of the principal in student achievement. Andrews and Soder (1987) conducted a two-year study in Seattle, Washington using data from the California Achievement Test from 1983-1984 to examine how critical the principal was to student academic achievement in both mathematics and reading. Based on student achievement data from 33 of the 66 elementary schools in Seattle, Andrews and Soder classified the principals of the eleven highest scoring schools as strong leaders, the middle eleven scoring principals as average leaders, and the eleven lowest scoring schools as weak leaders. Principals were placed in these categories based solely on test scores. Teachers in these thirty-three schools were given a questionnaire designed to measure eighteen strategic interactions between the teachers and the principals.

The information gathered by the Andrews and Soder questionnaire was grouped into four key categories. The first category was about the principal as a resource provider. In this role the principal was seen as someone who marshaled resources within the community, district and building to achieve the school's goals. The second role of the principal was as an instructional resource. The principal was seen as someone who set expectations for the continued improvement of the educational program. The principal actively participated in improving learning in the classroom. The third role was the principal as a communicator. In this role the principal articulated a vision of the

instructional goals for the school. The principal also set and adhered to clear performance standards for instruction and for teaching. The fourth role was the principal as a visible presence. The principal was out and about in the school, visiting classrooms walking the halls, talking with students (Andrews and Soder, 1987).

Findings in the Andrews and Soder study suggested that scores of students in the schools with strong principals were significantly higher in both reading and mathematics than those for students from schools with average to weak principals. An interesting aspect of this study was that it included percentage of free and reduced price lunch at the school as part of the analysis. From this they concluded that lower socio-economic students benefitted more from strong leaders than their higher socio-economic peers.

Effective schools research and the school reform efforts of the 1970s and 1980s thus brought the role of the principal clearly to the attention of researchers, politicians, and policy makers. Principals were seen to have a major role in securing and encouraging instructional improvement in the school. In this light, researchers began to view principals as actors whose behaviors could be observed and documented (Bossert, Dwyer, Rowan, and Lee, 1982; De Bevoise, 1984; Hallinger and Murphy, 1986; Andrews and Soder, (1987); Heck, Marcoulides, and Glasman, 1989; Larsen, 1989). Principal behaviors were now identified as variables that affected student academic achievement (Heck, 1993).

Policy makers in the late '80s began to pay attention to research that tied student achievement to strong principal leadership (Glassman and Heck, 1987). Politicians also joined the cry for improved student outcomes (Hallinger and Heck, 1996) and saw the

principal as one of the keys to the process. Researchers, policy makers and politicians, in their own arenas, included the leadership of the principal as one of the central pillars of improving student achievement (Andrews and Soder, 1987). For many people, including policy makers, legislators, and the general public, principals were responsible for improved student outcomes and can be influenced through legislative channels, school boards, and directors of school systems.

The interest in the principal as key in the educational process can be seen in the area of principal evaluation. From 1975-1990 state mandated principal evaluations increased from nine to 40 states (Snyder and Ebmeier, 1992).

In Tennessee, the importance that policy makers and politicians place on the role of the principal in the education process is evident by the inclusion of performance contracts for principals as part of the Tennessee Educational Improvement Act, school improvement legislation enacted in 1992. The Education Improvement Act of 1992 in Tennessee made sweeping changes in the conditions of the employment of principals. One of the changes included an employment contract containing specified performance standards. Section 49-2-303(a)(1) also allows for non-renewal of the contract if the performance standards are not met. In other words, principals in the State of Tennessee can now lose their jobs if they do not meet the criteria in their contracts. One of the key components of the principal contract is student achievement on the standardized tests that are given each year in the State of Tennessee.

Section 7 of the State of Tennessee Education Improvement Act of 1992 provides that the director in any given system provides performance contracts to principals. The

model contract that is being distributed and taught to school system directors across the State of Tennessee has four parts: Performance Contracts Dimensions (six items); Performance Objectives (eleven items); State Performance Goals and Standards (five items) and the Evaluation Instrument (eleven items). Four items in the performance objectives section deal with students' academic performance. For instance, in item number nine the principal agrees to "Improve students' academic performance". Two of the five items in the State Performance Goals and Standards contain improving student academic performance goals. Two of the eleven items in the Evaluation Instrument contain references to improving student outcomes. Item number six of the contract states: "Every grade has reflected a positive growth in each category of the Tennessee Value Added Assessment System (TVAAS)" (Tennessee Model Performance Contract for Principals, 1998, p.16).

School systems such as Knox County established performance contracts for their principals that include provisions regarding improved student academic achievement (The Knoxville News Sentinel, October 1997). Not only can student test scores be linked by law to the continuation of a principal in their job, but students' test scores may also be linked to principals' salaries. "Principals who don't go the extra mile to improve student achievement can be hit in the pay check or even fired" is the situation that principals find themselves in several school systems across the country (The Knoxville News-Sentinel, November 1998).

In spite of the significant legislation, and the generally accepted conclusion drawn from the effective schools research that the principal is key to an effective school and

student academic achievement (Andrews and Soder, 1987), some researchers question whether the relationship between student achievement and effective principal leadership is causal or just coincidental (Heck, et al, 1990). Other researchers, even during the hey day of the effective schools research era, continued to raise serious questions about the nature of a cause and effect relationship between the activities of principals and student achievement (Rowan, Bossert & Dwyer, 1983; Hallinger & Murphy, 1986; Pitner, 1988).

Critics of Effective Schools Research

A few researchers, such as Heck, Hallinger, Cuban, Rowan, Bossert and others, were part of an ongoing debate among researchers who questioned the limits of research findings that viewed the principal as a cause of student academic achievement in a school. Cuban, in the forward to Hallinger's book Cognitive Perspectives on Educational Leadership (1993), was critical of the view that put the principal at the forefront of student achievement. Cuban suggested that research was being driven more by the policy makers than by open inquiry. Politicians and policy makers at the local, state and national levels were exerting pressures on researchers to explain the success or failure of schools by results on standardized tests. Equitable school funding, teacher effectiveness, and principal leadership, were three of the frames through which researchers designed their research for improving schools. During the 1980s there was a growing realization among scholars that the vast body of principal effectiveness research did not seem to completely address the complexity of the principal effects on achievement question either in method or theory (Bossert et al., 1982; Bridges, 1982; Hallinger and Murphy, 1985; Boyan, 1988; Pitner, 1988). Rowan (1984) observed the tendency of some of the effective schools

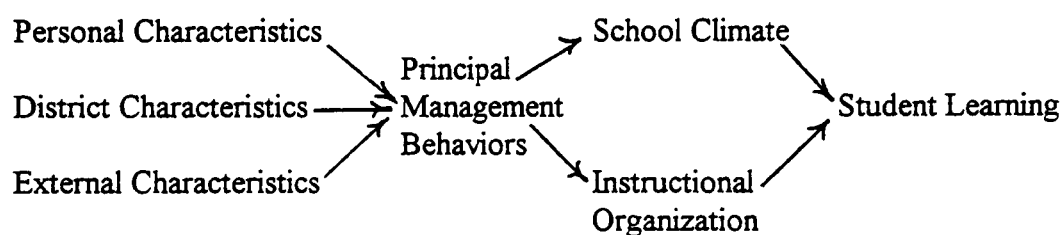
literature to disregard empirical data if they ran counter to the view of the researcher.

Rowan criticized much of the effective schools research as “shamanistic rituals designed to promote organizational health” (p.24).

Researchers in the field of leadership behaviors of school principals began to suggest that earlier research was also limited by the use of direct effects research designs (Bossert et al, 1982; Boyan, 1988; Larsen, 1985,1987; Glassman and Heck 1987). Direct effects designed studies postulated that there was a direct link between the principal and student academic achievement. The early research of the 1960s and 1970s had included personal traits of the principal, but ignored the complex environment or context of the school in which the behaviors took place. Variables such as the socioeconomic characteristics of the school, parent support in the school, and central office support were not included in these research designs (Bridges, 1982). Therefore, simple direct effect studies were limited in what they revealed about the role of the principal and student achievement (Hallinger and Murphy, 1987). In spite of the body of work contained in the effective schools research linking the principal with student achievement, the research did not sufficiently frame a theoretical model that revealed how the leadership behaviors of the principal could be understood in a way to help improve student outcomes (Bossert, Dwyer, Rowan, Lee, 1982).

IV. THE MULTIVARIATE MODEL

Responding to this issue, Bossert et al (1982) proposed a new, more complex research framework. He considered the classical model of a bureaucratic organization to be limited in its usefulness for understanding principal effects. He considered this traditional model as an "ideal-typical formulation of the morphological nature of the school" which ignored the practical day-to-day workings of a school (Bossert, 1982). Secondly, Bossert suggested the traditional model that much of the effective schools research was built on "may over estimate the direct effect" of the principal. In contrast to the linear, hierarchically traditional theoretical model, he proposed a new model that was in sharp contrast to the traditional model as follows:



The Bossert Model (1982)

This model shows that a principal's instructional management behaviors affect both the school climate and the instructional organization of the school. These, in turn shape the behaviors and attitudes of the teachers and the students and thus, affect student learning.

While this is happening, the principal's own behavior is being shaped by a number of factors that are effectively external to the school. The principal behaves within a broader environment where his or her behaviors become both dependent and an independent variable. The principal, as an independent variable, exhibited certain leadership behaviors that influenced others. As a dependent variable his or her behaviors were subject to the influences of other variables in the school and its environment.

The Bossert (1982) model thus positioned principal behaviors between those variables that cannot be affected by behaviors called antecedent variables, and those variables the principal could change, called dependent variables. Antecedent variables consisted of the personal characteristics of the principal and district characteristics. Variables dependent on principal behaviors were defined to include school climate and instructional organization. Bossert (1982) hypothesized that the principal influences student learning indirectly by affecting the climate of the school and the instructional organization of the school, such as class size and class composition.

Principal behaviors such as communicating, decision making, monitoring activities, and setting up the governance structure of the school, were also shown to be linked to student achievement (Bossert, et al., 1982; Boyan, 1988; Glasman and Heck, 1987; Larsen, 1985, 1987; Pitner, 1988) and needed to be included in the designs of studies of principal effectiveness. What remained unclear was the specific way principal behaviors contributed to the influence of school context, and school variables such as SEC or class size, affected student achievement.

Researchers worked to refine the Bossert model and formulate a model that accurately described the complexity of principal leadership behaviors and student achievement. Glasman and Heck (1987), Larsen (1987), Boyan (1988) and Pitner (1988) all concluded, as the Bossert model suggests, that the principal's effect is indirect, not a direct effect. The results of their research solidified thinking in the field that "a multi-dimensional model of principal leadership is more useful in assessing principal leadership effectiveness than either of the previously accepted models of leadership" (Heck, Larsen and Marcoulides, 1990). The multivariate model approach gained greater acceptance in the literature and the field, and was highlighted in significant studies by Heck et al (1990) and Hallinger, Bickman and Davis (1996).

Recent Research

The multivariate model was expanded in a research project by Hallinger, Bickman and Davis using 1983-1985 school year data and reported in 1996. Eighty-seven elementary schools participated in the study. The antecedent variable included in the model were the socioeconomic status of the school, level of parent involvement, gender of the principal, and the teaching experience of the principal. The mediating variables were instructional climate (school climate) and instructional organization. The dependent variable of student achievement was defined as reading scores on a test called the Basic Skills First test.

The Basic Skills First test designed by the Tennessee State Department of Education was used to measure student achievement. The test was given in the fall and the spring of 1984-1985 school years. Using the fall data as the pre-test and the spring data

as a post-test, Hallinger was able to examine student gain data rather than student achievement outcomes in relationship to the multivariate model. Hallinger's research confirmed that the relationship between the school principal and school effectiveness can better be understood through models that include school contextual variables. This research also supports the concept that the principal behaviors should be viewed as both independent and as dependent variables in further research.

Heck, Larsen and Marcoulides (1990) conducted benchmark research using a multivariate model involving achievement data from the California Assessment Program (CAP) in schools in California. This study included the variables of school climate and instructional organization as in the Bossert (1982) model. Heck et al., 1990, added a third mediating variable, school governance. The researchers used regression techniques to standardize for SEC thus allowing for comparisons between schools. The researchers were interested in sampling schools that showed consistent, long term (at least three years) achievement at above or below the expected mean achievement based on the California Assessment Program tests. In a total population of over 5,000 schools in the state of California, only eighty-five elementary schools and thirty-three high schools met the criterion of three years of consistent performance on the CAP above or below the mean achievement band in third and sixth grade scores in reading and math, or the twelfth grade scores in reading, math and language for the high schools. A questionnaire was mailed to the principal of each school instructing him or her to give the questionnaire to a random sample of six teachers within the school. The questionnaire was built and designed based on previous research (Andrews and Soder, 1987; Hallinger and Murphy, 1987), to

measure 22 important behaviors within the three earlier identified mediating variables.

The principal, and at least four teachers at each school had to return the questionnaires in order for the school to be included. This resulted in a final sample of 56 schools and 388 subjects (56 principals and 332 teachers) from the entire state of California. The principal and the teachers must have been present at the school for at least three years during the time of the study. The results of the study confirmed, through structural equation modeling, the appropriateness of the theoretical model to understanding the factors that principals can influence student achievement (Heck, Larson and Marcoulides, 1990; Heck, 1992; Heck and Marcoulides, 1993).

Heck (1993) confirmed his California (1990) study results by conducting a similar study in Singapore using a sample of 26 secondary schools. Again, six randomly selected teachers and the principal were asked to complete a questionnaire. One hundred and thirty-eight usable questionnaires were analyzed. Results of this study supported the multivariate model used earlier in the California study (Heck, 1990).

Multivariate Model Concerns

As the multivariate approach has gained greater acceptance, the methods to evaluate the effects of principal behaviors on student outcomes has been limited in two major ways. First, previous research used extremes of high and low student outcome data and then generalized the results to schools with different student outcome results. Heck (1992) warned against this approach and recommended including the mid-range of scores in student outcome data. That is, schools should be included in the sample not from just

the high or low end of student achievement, but also those schools whose student outcomes fall in the middle.

The second is the use of achievement data only as a means to measure student outcomes in the model. Most of the major studies in this field use student achievement data from standardized tests to measure student outcomes. The data are normed and student scores are compared to the national norm as a way to determine student outcomes in the model. Defining student outcomes only in terms of mean achievement score over a single school year may limit conclusions that can be drawn from the research. The Andrews and Soder (1987) study and the Hallinger et al. (1996) study to date are the only studies that used some form of student gain data rather than mean achievement scores on a standardized test.

Thus a weakness of the research to date has been the way student outcomes are measured. No complete data base, until now, has been available to researchers that enables student outcomes to be measured both in terms of achievement and gains over a three-year period. Longitudinal data in both gains and achievement are now available. Sanders' (1994,1997) work with the Tennessee -Value Added Assessment System (TVAAS) has made available a longitudinal analysis of three years of student achievement and gain data on all students in the third through eighth grades in Tennessee.

This data base allows a further addition to the multivariate model in terms of student outcomes. Therefore, this study extends previous research in this field in two ways. First, student outcomes in reading will be measured both in terms of gain and achievement. Secondly, since data are available on all 4th grade students in Tennessee,

schools in the mid-range of student outcomes are included in the study as recommended by Heck (1992).

In the next section, the literature continues with the review of pertinent research that relates to the antecedent variable of gender and socioeconomic characteristics selected for use in the study.

Contextual Variables

Considering gender as an important variable in school research is not a new concept. Gross and Trask, as part of the National Principalship Study in 1964, and later in 1976, found that men and women principals differed in areas such as teaching experience, age, marital status, academic achievement and rural versus urban origins to name just a few. These gender differences were examined in relation to the functioning of their schools. Female principals exerted greater control over their teachers' professional activities than male principals.

Other research studies tend to suggest an association between principal leadership and gender (Adkison, 1981; Glasman, 1984; Gross & Trask, 1976; Hallinger & Murphy, 1985). This research indicates that female elementary school principals are usually more actively involved in instructional leadership than are male principals. In a review of research, Leithwood et al. (1990) stated that:

The socialization experiences appear to cause more men to seek the principalship earlier in their careers (before age 30) and to aspire to the superintendency as a career move. Gender related socialization experiences also seemed to contribute to a relatively large proportion of women viewing themselves more as curriculum and instructional leaders; relatively larger proportions of men, in contrast viewed themselves as general managers (p.26).

Adkison (1981) takes the question of gender a bit further in her review of the research. She concludes "the connection between administrative behaviors and school conditions leads the reviewers to agree that the weight of the behavioral evidence shows women to be more effective than men in the principalship." Why the difference? Gross and Trask (1976), suggest that female principals had more experience in the classroom and thus have more expertise in instructional issues and a greater confidence to become involved in instructional issues. Other researchers like Frasher and Frasher (1975), have a broader argument that explains the difference based on the sex roles that have existed for thousands of years. They claim that female characteristics such as nurturing, patience, and sensitivity make them better administrators.

Ortiz and Marshall (1988) reported that women contributed to higher teacher performance and student achievement because they are more likely to be involved in instructional leadership tasks. Pavan and Reid (1994), in a study of Chapter I elementary schools in Philadelphia, also concluded that principals who emphasize instructional issues are predominately female and have more productive schools.

Research on principal instructional leadership began to explore the relationship of principal leadership behavior to school environment, social context and the instructional leadership of the principal with student achievement (Heck, Larson and Marcoulides, 1990; Wimpleberg et al., 1989). The higher the socioeconomic composition of the student population, the more resources in both staff and materials the schools had for learning and thus students scored higher on standardized tests (Barr and Dreeban, 1988; Bossert, 1988; Heck and Marcolides, 1989).

Leadership behaviors were also seen to be influenced by SEC. For example, Andrews and Soder (1987) concluded that there was a significant relationship between academic achievement and principal leadership, but they considered the SEC of the school the relationship disappeared for the high SEC schools and remained for the lower SEC schools. Along the same vein Hallinger and Murphy (1986) did a study that considered the effects of SEC on principal leadership behaviors. Their research also suggested that the SEC of a school influenced the leadership behaviors of the principal. Principals in the higher SEC schools tended to be more flexible and not as autocratic as those in lower SEC schools.

Principals in the lower SES schools were more forceful in asserting themselves in making instructional decisions and in intervening in classrooms where teachers were not meeting expectations. In the upper income schools principals tended to orchestrate more from the background, actively coordinating the educational programs of their schools, but not exercising as much control as principals in the lower SES schools (Hallinger and Murphy, 1986)

In low-SEC schools parent involvement in the school was limited. Principals in the low-SEC schools did less to involve parents in the school than their high-SEC peers. Thus low-SEC principals behaved in a controlling way to limit access to the school. In contrast to this principals in high-SEC schools did a great deal to link the school, parents and the community (Hallinger and Murphy, 1986).

V. SUMMARY

The review of literature has built a base for understanding of the extensive body of literature on principal effects research. The early research of Getzel (1952), Halpin (1957), Halpin and Croft (1963), and Erickson (1967) underscored the efforts to establish a theoretical framework to guide early researchers. The effective schools research of the '70s and '80s placed the responsibility for student achievement squarely on the shoulders of the building principal (Weber, 1971; Edmonds, 1979; Lezotte and Brookover, 1977; Bossert, 1985; Andrews and Soder, 1987). The public, politicians, and policy makers accepted this general conclusion, and enacted legislation and formulated policy consistent with the outcome of the effective schools research.

Critics of the effective schools research regarding associating the school principal with student achievement expressed two major concerns. The research design critics argued that the research was too simplistic in its direct effects approach to the question (Bossert, 1982; Boyan, 1988; Larsen, 1985; Glassman and Heck, 1987). Secondly, there was a lack of a clear theoretical model to frame the research (Bossert, 1982; Hallinger and Murphy, 1985; Boyan, 1988; Pitner, 1988). The development of the multivariate approach by Bossert (1982) was an important initial response to these concerns. The model was later refined by Glassman and Heck (1987), Larsen (1987), and Pitner (1988), (Heck, et.al., 1990, Hallinger, 1996). Literature pertaining to the key contextual variables of gender (Gross and Trask, 1964, 1979; Adkison, 1981; Ortiz and Marshal, 1988; and Pavin. 1994) and SEC (Hallinger and Murphy, 1986; Andrews and Soder, 1987; Bossert,

1988; Barr and Dreeban, 1988; Wimpleberg et al., 1989; Heck et al., 1990) suggested the importance of these variables.

Several other recent benchmark studies give direction to the model (Heck et al., 1990; Heck, 1992; Heck, 1993; Hallinger Bickman and Davis, 1996). This supporting literature underscores the importance of this study in terms of both research design (Heck, 1992) and in the use of longitudinal student outcome data (Sanders, 1994, 1997). The availability of the extensive longitudinal student outcome data base provides an important and timely opportunity to extend the body of knowledge of principal behaviors and student outcomes.

CHAPTER III

RESEARCH METHODS

**The important thing for you is not how much you know,
but the quality of what you know.**

Erasmus

I. INTRODUCTION

The purpose of this study was to extend our knowledge of the relationships between certain characteristics of principals, their schools, and three constructs of principals' behaviors to student reading outcomes. The research questions asked about the relationships between variables that surround principals' leadership behaviors and student achievement. This chapter explains the theoretical model used in the study, the population and sample, the instrument, the data collection procedures, and the analysis of the data.

II. DESIGN OF THE STUDY

This study followed a path model approach using regression analysis to determine the relationships between variables. The general model looked and flowed like this:

**ANTECEDENT → INTERVENING → STUDENT
VARIABLES VARIABLES OUTCOMES**

The research model was based on the work of some of the top researchers in the principals effects literature (Bossert et al., 1982; Pitner, 1988; Heck et al., 1990; and Hallinger et al., 1996). The variables chosen for this research were also ones used in previous research and found to have significant effect on student outcomes.

Antecedent variables were variables that the principal had no control over such as personal characteristics or district characteristics. Antecedent variables were independent variables. For this study one personal characteristic gender (G), and one district characteristic the socioeconomic composition (SEC) of the school were chosen as antecedent variables. Both antecedent variables have been shown in previous research to influence student academic achievement and the type of leadership the principal uses at the school (Gross and Trask, 1976; Heck et al., 1990; 1992, Hallinger et al., 1996).

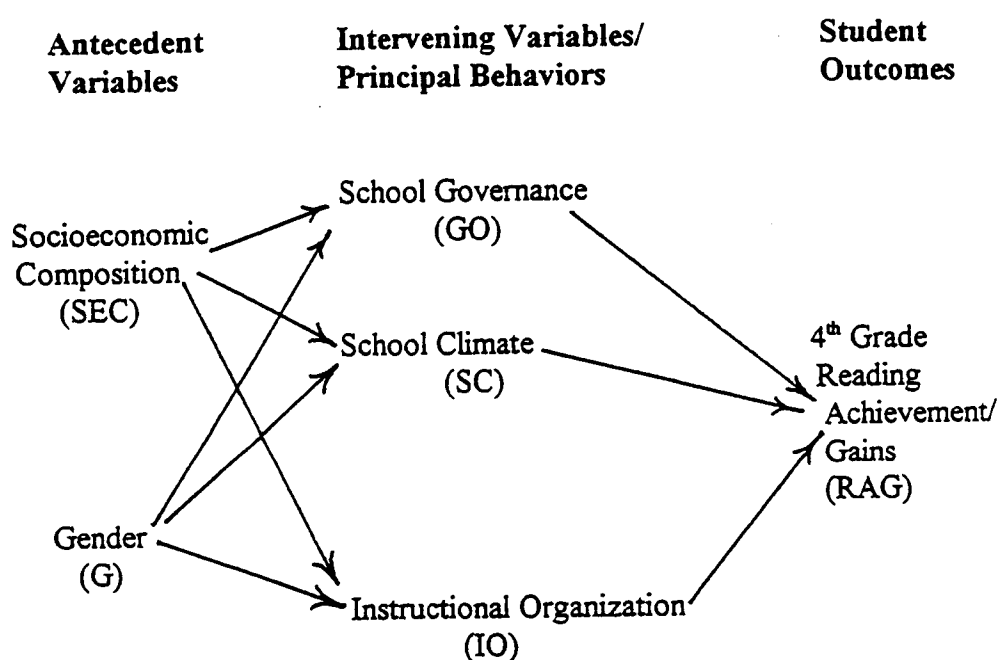
The intervening variables included how the principal and their teachers perceive the principal's behavior for: structuring the governance of the school (GO), creating the climate of the school (SC), and organizing the school program for instructional (IO). Intervening variables are both dependent and independent variables. These variables were selected because they had been used in several of the previous important studies in the field. Bossert (1982) included the mediating variables of School Climate (SC) and Instructional Organization (IO) and linked them to achievement. Heck (1990) added the mediating variable of Governance (GO). He linked GO with SC and IO. Then he linked SC and IO to Achievement (ACH). Heck in (1992) added GO, SC and IO together and linked them

to Achievement (ACH). In his 1992 study, Heck stated:

In the present study, the extent of implementation of some instructional leadership tasks within the three mediating variables identified by Bossert et al., (1982) and Heck et al., (1990) as important domains of principal influence (governance, climate and instructional organization) was associated with higher or lower school academic performance (p.33).

For the purpose of this study, all three variables were linked directly to student outcomes.

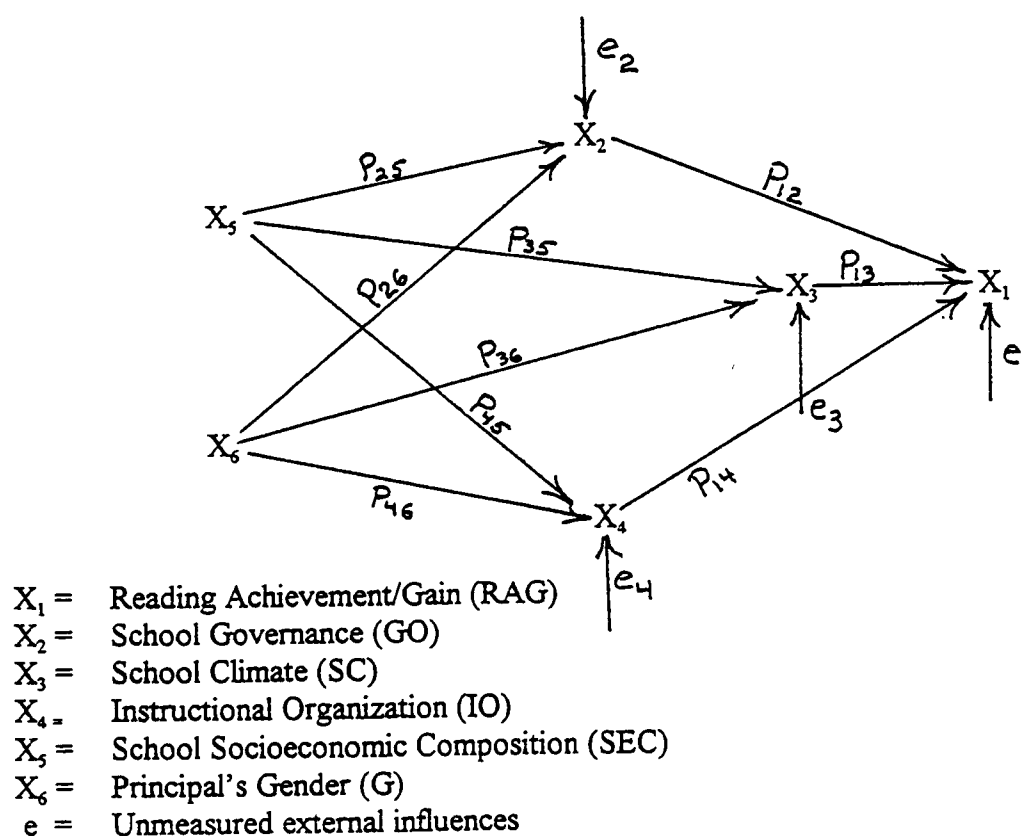
Student outcomes can include areas such as behavior or attitudes, but are often thought of as academic achievement in a subject area. For this study, fourth grade student achievement and gains in reading made up the dependent variable. The specific application of the model to this research design can be seen in Figure 1.



THE RESEARCH MODEL

Figure 1

The relationship between the antecedent and independent variables of principal Gender (G) and school Socioeconomic Composition (SEC) to principal leadership behaviors, and the intervening variables of School Governance (GO), School Climate (SC), and Instruction Organization (IO) to the student outcome of Reading Achievement and Gains (RAG) are represented in the model by unidirectional arrows. These intervening variables were treated as dependent variables subject to the influence of the antecedent variables. Intervening variables were also treated as independent variables in regard to student reading outcomes. The arrows represented paths of influence (see Figure 2).



PATH DIAGRAM

Figure 2

For each of the arrows or paths, a path coefficient was calculated. A path coefficient represents the direct effect of an independent variable on the dependent variable (Pedhazur, 1982). As Pedhazur (1982) explained, "For each independent variable in the equation, there is a path coefficient indicating the amount of expected change in the dependent variable as a result of a unit change in the independent variable" (p.583). The symbol for the path coefficient is a *P* with two subscripts, the first subscript represents the dependent variable and the second subscript represents the cause or independent variable (Pedhazur, 1982). A more detailed discussion of the application of the statistical treatment used in this study is contained in Section VI of this chapter.

III. POPULATION/SAMPLE

Three year average mean reading achievement and gain scores for schools with fourth grade students from the 1996-1997 Tennessee Value Added Assessment System (TVAAS) reports were obtained. The data are reported both in mean achievement scores - how the fourth grade students score nationally in their grade and gain scores - how much did the students in the school learn (gain) from one annual test to the next, compared to the students' average gain compared to a national norm gain group. The University of Tennessee Value-Added Research and Assessment Center, which has collected and stored the student data from the Tennessee Comprehensive Assessment Program (TCAP) test provided a list of all the schools in Tennessee containing the fourth grade. Each school was ranked on two lists, one list representing the mean achievement

scores of students in the schools from high mean reading scores to low mean reading scores. The second list ranked schools on their three year average gain scores in reading again from high to low. From these two lists a grid matrix was constructed containing five horizontal bands and five vertical bands each representing 20% of the distribution of mean and gain scores (see Figure 3). Creating this quintile matrix resulted in a 25 cell grid. The five horizontal bands represent the low to high, three-year average gain scores for the schools. The five vertical bands represent the low to high, three year average mean achievement scores for the school.

In the interest of getting a wide distribution of observed school mean versus gain scores, all schools containing the fourth grade in the state of Tennessee that had scores in the four corners of the matrix and schools with scores in the middle of the matrix were asked to participate in the study. In other words, schools with scores that fall in the following five cells: low mean-high gain, high mean-high gain, high mean-low gain, low mean-low gain and middle mean-middle gain, were surveyed in the study. These cells may also be identified as cell #1 - the upper left cell, cell#2 - the upper right cell, cell #3 - the lower right cell, cell #4 - the lower left cell and cell#5 -the cell in the middle of the matrix shown in Figure 3.

The number of schools identified by TVAAS data in each cell are listed in Table 1.

		MEAN				
		LOW	LOW MIDDLE	MIDDLE	HIGH MIDDLE	HIGH
GAIN	HIGH	CELL #1 LOW MEAN HIGH GAIN SCHOOLS				CELL #2 HIGH MEAN HIGH GAIN SCHOOLS
	HIGH-MIDDLE					
	MIDDLE			CELL #5 MID-MEAN MID-GAIN SCHOOLS		
	LOW-MIDDLE					
	LOW	CELL #4 LOW MEAN LOW GAIN SCHOOLS				CELL #3 HIGH MEAN LOW GAIN SCHOOLS

3 YEAR AVERAGE GAIN BY MEAN SCORES

FREQUENCY TABLE OF SCHOOLS**Figure 3****TABLE 1****NUMBER OF SCHOOLS IDENTIFIED BY TVAAS DATA**

Cell Number	Number of Schools
1	30
2	50
3	17
4	58
5	<u>35</u>
Total Schools	190

IV. INSTRUMENTATION

The survey instrument selected for this research is called the Administrator Leadership Profile (ALP) questionnaire. The Administrator Leadership Profile is a questionnaire originally developed by Larsen (1987) and further refined by Heck et al., 1990, Heck 1992, and Heck 1993.

The survey is research based and grounded in Boyan's (1988) theory that principals influence both the governance and the work structures of the school. The ALP instrument gathers data on 27 instructional leadership behaviors that were carefully identified after extensive field testing and research (Andrews and Soder, 1987; Larsen, 1987; Marcoulides and Heck, 1992; Heck et al., 1990; Hallinger, 1996; and Heck, 1996). The questions in the instrument were grouped into three main constructs that represent intervening variables of principal behaviors related to: school governance - eight items (1-8); school climate - eleven items (9-19); and program and instruction (instructional organization) - eight items (20-27). Examples of items for school governance questions were: "Involves staff members in important decisions; and "Involves parents in committees and various school projects". Examples of items for school climate questions were: "Has helped articulate a school vision and purpose which is communicated to staff"; "Establishes effective two-way communication with staff and parents about school-related matters"; and "Is easily approached by teachers with problems they have". Examples of the program and instruction (instructional organization) questions were: "Works with teachers to coordinate the school's program and curriculum improvement

efforts”; “ Makes regular classroom visitations and provides feedback and strategies to improve instruction”; and “ Provides leadership in planning and implementing programs to meet school needs”. The respondents were asked to bubble in their answers as to whether they: 1)strongly disagree; 2) disagree; 3) neutral; 4) agree; 5) strongly agree. Cronbach’s Alphas, a measure of reliability -consistency for the three constructs consistently range from .87 to .91. (Heck, 1997)

Background questions to interpret the data questions were 1) Years of teaching experience at this school; 2) Years the principal has been at this school; 3) Percentage of students on free and reduced price lunch and 4) The gender of the principal.

V. DATA COLLECTION PROCEDURES

The research design and the statistical analysis of the data were reviewed by personnel at the Statistical and Computational Consulting Center at The University of Tennessee prior to finalizing the project. Approval from the Institutional Review Board (IRB) of the University of Tennessee was obtained prior to data collection.

The instrument and the procedure were piloted at three Oak Ridge City elementary schools. The procedure and the instrument were analyzed. As a result of the pilot study the time allocation estimate to complete the Administrator Leadership Profile (ALP) (Appendix A) was reduced from ten minutes to seven minutes. No changes were made in the instrument.

Principals were mailed a packet containing seven ALPs. Before packets were mailed, the principals of the schools were telephoned by the principle investigator to obtain their commitments to participate in the study (Appendix B). Once a principal agreed to participate in the study, he/she was mailed a survey packet. The packet contained a letter to the principal (Appendix C) reiterating the purpose and procedures for the study, an ALP survey for the principal to complete, a table of random numbers, and a postage paid envelope to return all surveys to the researcher. Also included in the mailing were six teacher packets each containing a teacher letter (Appendix D), an ALP survey, and an envelope to seal and return the survey. Principals were asked to randomly select six teachers to participate in the study. Using a table of random numbers provided to them, principals selected teachers from an alphabetized list of their veteran teachers. Only teachers that had taught at the school for at least four years were included on the selection list. Each teacher selected was asked to complete the ALP survey.

The reading gain data supplied by the University of Tennessee Value-Added Research and Assessment Center encompassed the school years of 1994-1995, 1995-1996, and 1996-1997. Therefore, the principal must have started work in the school no later than the 1994-1995 school year.

The survey questions were prepared on scan sheets so that the respondents were able to "bubble in" their responses directly on the form. Each respondent was requested to seal his or her response in an envelope and return it to the school secretary. The secretary collected the sealed surveys from the staff and mailed them in a postage paid envelope to the researcher.

Each survey was identified by numeric code. Identification of the school was necessary in order to follow up when there was a poor response from a school and to identify the matrix band that the school belonged to in the population.

VI. DATA ANALYSIS

A path analysis approach was chosen because there is strong theoretical support for the model. Asher (1981) explains that in order to use path analysis, there should be substantial confidence in the theoretical model. The model has been widely used and accepted in the literature (Heck and Hallinger, 1996; Pitner, 1988). Asher (1981) states that the confidence in the model should be based on research that supports the theoretical linkages between the variables that make up the model. As Pedhazur (1982) noted, "Path analysis is not a method for discovering causes, but a method applied to a causal model formulated by the researcher on the basis of knowledge and theoretical considerations" (p.580). The research literature gives substantial theoretical support to the linkages investigated in this study.

The instrument used in the study collected demographic information and responses to three sets of questions. Each set of questions pertains to principal behaviors related to School Governance (GO), School Climate (SC), and Instruction Organization (IO) that are included as intervening variables in the model. Responses to the questions in each of the areas related to School Governance (GO), School Climate (SC), and Instructional Organization (IO) were summed and used as composite variables in the path model. In

the case of the construct School Governance (GO), the sum of eight questions (items 1-8) was used to calculate the grand sum for School Governance (GO). For School Climate (SC) the grand sum of eleven questions (items 9-19) was used. The construct of Instructional Organization (IO) used the grand sum of eight questions (items 20-27). The grand sum for each construct was used to calculate the path coefficient for each of the independent/dependent variables (see Figure 2). The data was compiled and analyzed using the Statistical Package for the Social Sciences (SPSS ver. 7.5).

In order to answer the research question, this analysis was done:

1. regressed X_2 on X_5 and X_6
2. regressed X_3 on X_5 and X_6
3. regressed X_4 on X_5 and X_6
4. regressed X_1 on X_2
5. regressed X_1 on X_3
6. regressed X_1 on X_4

All calculations were done for the total sample.

VII. SUMMARY

This chapter outlined the methods and procedures used in this research study. A detailed description of the unique sampling method used in the study was also part of this chapter. The next chapter will report the results of the study.

CHAPTER IV

FINDINGS

We should be careful to get out of an experience only the wisdom that is in it - and stop there; lest we be like the cat that sits down on a hot stove lid. She will never sit down on a hot stove lid again, and that is well; but she will never sit down on a cold one any more.

Mark Twain, Pudd'nhead Wilson's New Calendar

I. INTRODUCTION

This chapter presents the findings of the study and how they address the two questions the study sought to answer: (1) What are the relationships between the gender of the principal and the socioeconomic characteristics (SEC) of the school and the principal leadership constructs of school governance, school climate and culture, and the school program and instruction? (2) Do these variables have a significant effect on the three-year average reading gain and mean achievement scores of fourth grade students on the Tennessee Comprehensive Assessment Program tests? This chapter is organized into: (1) Introduction, (2) Sample/Demographics, (3) Reliability of Instrument, (4) Treatment of Data, (5) Summary.

Three-year average mean achievement and gain data of schools with fourth graders in reading were obtained for schools in Tennessee. This chapter presents the data and the analysis of the data. Ninety-six (96) schools participated in the study. A total of 604 surveys from elementary schools containing the fourth grade were included in the analysis.

II. SAMPLE/DEMOGRAPHICS

The three- year average mean achievement and gain scores for all the schools in Tennessee containing the fourth grade (N=891) were obtained from the Tennessee Value Added Assessment System. The number of schools that fell into the upper, lower and middle quintiles were identified (N=190). The names of the principals that had been at the schools during the same years covered by the test data (1994-1997) and who were still at the schools during 1998-1999 were obtained from the State Department of Education (N=119). These principals and their schools were invited to participate in the study.

The researcher contacted the principals by telephone. A total of 203 telephone calls were made to 119 schools. The number of calls exceeded the number of schools because the principal was not always available the first time the school was called or a follow-up call was needed to remind schools to return their surveys.

During the telephone contact the research project was explained and the principal was asked to participate. A script was used for the telephone conversation (see Appendix B). The number of principals that agreed to allow their schools to participate in the study after the telephone contact was 110. Table 2 shows the number of schools participating in

the study. Table 3 contains a more detailed breakdown by category of the schools that participated in the study.

TABLE 2
NUMBER OF SCHOOLS PARTICIPATING IN STUDY

	Qualifying Schools	Schools meeting Principal Requirement*	Agreed to Participate	Participated	School Response Rate
Number	190	119	110	96	87.3%

*Principal must have served in school at least 4 years.

TABLE 3
SAMPLE DISTRIBUTION

Category*	Original # of schools in each category	# of eligible schools	# of schools agreeing to participate	Actual number participating	Percent Responding
1	30	22	19	15	78.9%
2	50	31	31	29	93.5%
3	17	7	7	7	100%
4	58	33	29	23	79.3%
5	35	26	24	22	91.6%
TOTAL	190	119	110	96	87.3%

*Category 1 Low Achievement/High Gain; Category 2 High Achievement/ High Gain
Category 3 High Achievement/Low Gain; Category 4 Low Achievement/Low Gain
Category 5 Mid Achievement/Mid Gain

The actual number of schools participating varied in each category. The response per category ranged from 78.9% for Low Achievement/High Gain of the schools to 100% for the High Achievement/Low Gain schools. This group had the lowest number, N=7, of schools agreeing to participate. All seven schools participated.

The number of respondents per school ranged from 4 to 6 teachers and the school principal. Schools that did not have at least 4 teacher responses were excluded. If the school principal did not respond, the school was excluded from the study. A high percentage of schools, N=96, (87.3%) of the potential 110 schools returned sufficient questionnaires to be included in the study. The number of usable questionnaires was 604 or 78.4% of the potential number of questionnaires. A total of 245 (40.6%) females and 359 (59.4%) males returned a completed survey. The percentage of schools returning insufficient numbers of usable questionnaires was 2 schools (1.8%). Schools not responding to the survey after agreeing to participate during the telephone contact were 12 schools (10.9%).

The distribution of the respondents based on the two antecedent variables of socioeconomic composition of the school (SEC) and gender of the principal were recorded. All the schools in the Low Achievement/High Gain Category (3) had a student population above 50% in free lunch. The High Achievement/High Gain Category (2) schools were skewed toward higher socioeconomic composition with 28 of 30 schools below the 50% free lunch level. The Low Achievement/Low Gain schools were also predominately above 50% free lunch (N=21 out of 22 schools). The Mid Achievement/Mid Gain were equally distributed, 12 schools below 50% free lunch,

and 10 schools above 50% free lunch. In the total sample, 47.9% (N=46) schools were below 50% free lunch. Schools with a student population above 50% free lunch made up 52% of the sample (N=50). The percent of students in a school qualifying for free lunch, the indicator used to determine the socioeconomic composition (SEC) of the school, is reported in Table 4.

Table 5 shows the gender of the principal and the socioeconomic composition of the school. Table 6 shows the gender distribution based on the category of the school. There were more male principals (N=55) than female principals (N=41) in the responding schools.

TABLE 4
DISTRIBUTION OF SCHOOLS BASED ON FREE LUNCH

School Category*	0-29%	30-49%	50-69%	70-89%	Above 90%
1	0	0	5	7	3
2	18	10	1	1	0
3	3	2	2	0	0
4	0	1	7	8	6
5	1	11	8	2	0
TOTAL	22	24	23	18	9

*Category 1 Low Achievement/High Gain; Category 2 High Achievement/ High Gain
Category 3 High Achievement/ Low Gain; Category 4 Low Achievement/ Low Gain
Category 5 Mid Achievement/Mid Gain

TABLE 5
GENDER OF PRINCIPAL AND SEC* OF SCHOOL

Principal Gender	Percent of Students Qualifying for Free Lunch					TOTAL
	0-29%	30-49%	50-69%	70-89%	above 90%	
Male	9	17	12	12	5	55
Female	13	7	11	6	4	41
Total	22	24	23	18	9	96

*SEC = Socioeconomic composition

TABLE 6
GENDER OF PRINCIPAL AND CATEGORY OF SCHOOL

Principal Gender	Category*				
	1	2	3	4	5
Male	10	17	3	15	13
Female	5	13	4	8	9
Total	15	29	7	23	22

*Category 1 Low Achievement/High Gain; Category 2 High Achievement/ High Gain
Category 3 High Achievement/ Low Gain; Category 4 Low Achievement/ Low Gain
Category 5 Mid Achievement/Mid Gain

Treatment of Non-respondents

In order to attribute the results of the study to the schools in the sample who did not respond or who supplied insufficient data to have their responses included in the original survey a second, abbreviated, survey was mailed to this group. This smaller survey was composed of ten of the questions from the original ALP that had the widest distribution of responses in the first mailing.

The ten-item questionnaire was mailed to fourteen (14) schools. The same instructions given in the first mailing were given to this group of non-responding schools. Of this group, 8 schools returned their surveys (a 57.1% response rate for the non-responding group). Responses to the ten questions used in this abbreviated survey were consistent with the same questions used in the larger survey (see Appendix E). Based on this second survey, it may be concluded that the results of the study could be generalized to the larger sample.

III. RELIABILITY OF INSTRUMENT

The instrument had been used in previous research with Cronbach's Alpha on the three constructs ranging from .87 to .91 (Heck, 1997). Table 7 shows the reliability measures calculated for the Administrator Leadership Profile used in this study. These measures are consistent with previous studies and are very high.

IV. TREATMENT OF DATA

The research questions asked: 1) What are the relationships between the gender of the principal and the socioeconomic characteristics (SEC) of the school, and the principal leadership behavior constructs of school governance, school climate and culture, and the school program and instruction, as measured by the Administrator Leadership Profile (ALP) instrument? 2) Do these variables have a significant effect on the three-year average reading gain and mean achievement scores of fourth graders on the Tennessee

TABLE 7

RELIABILITY MEASURES FOR SURVEY INSTRUMENT

Construct	Cronbach's Alpha	Number of Items
School Governance	.8865	8
School Climate	.9299	11
Instructional Organization	.9140	8

Comprehensive Assessment Program (TCAP) test? In order to answer these two questions, first the correlations between the variables were calculated then the regression analysis was completed.

Correlation Analysis

There was a high positive correlation between the mediating variable constructs used in the model. Table 8 reports the correlation of the variables. Achievement was only

significantly related to gain, though not as high as the three constructs of School Governance, School Climate, and Instructional Organization were to each other.

TABLE 8
CORRELATIONS OF VARIABLES

	Gender	SEC	GO	SC	IO	ACH	GAIN[†]
Gender	1.000	.120**	-.067	-.086*	-.080*	-.111**	.018
SEC	.120**	1.000	-.028	-.015	.018	-.819**	-.259**
GO	-.067	-.028	1.000	.813**	.747**	-.016	.064
SC	-.086*	-.015	.813**	1.000	.793**	-.016	.020
IO	-.080*	.018	.747**	.793**	1.000	.018	.041
ACH	-.111**	-.819**	-.016	-.016	.018	1.000	.294**
GAIN	.018	-.259**	.064	.020	.041	.294**	1.000

N=604

[†]SEC = School Socioeconomic Composition (% Free Lunch), GENDER = Male or Female Principal, GO = Governance, SC = School Climate, IO = Instructional Organization, ACH = 3 year average mean achievement scores, GAIN = 3 year average gain scores

* significant at $p < .05$ level

**significant at $p < .01$ level

There were statistically significant correlations ($p < .01$) between the variables of Gender and Socioeconomic Composition ($r = .120$, $p < .01$); Gender and Achievement ($r = -.111$, $p < .01$); Socioeconomic Composition and Achievement ($r = -.819$, $p < .01$); Socioeconomic Composition and Gain ($r = -.259$, $p < .01$); Governance and School Climate ($r = .813$, $p < .01$); Governance and Instructional Organization ($r = .747$, $p < .01$); School

Climate and Instructional Organization ($r = .793$, $p < .01$); Achievement and Gain ($r = .294$, $p < .01$). There was statistically significant, yet small, correlation ($p < .05$) between the variables Gender and School Climate ($r = -.086$, $p < .05$); Gender and Instructional Organization ($r = -.080$, $p < .05$). None of the other relationships were statistically significant.

Regression Analysis

Following the correlational analysis, the theoretical model explaining the relationships among the six variables was tested. To test the path model of principal behaviors, a multiple regression analysis was completed regressing student outcomes on the other variables in the model. Six specific regression equations were calculated. Each regression equation resulted in a standardized beta coefficient for each path.

The beta coefficients, calculated for the path between the dependent variable and the independent variable, can be explained in the following manner. The beta coefficient for the path between Student Mean Achievement in reading and Instructional Organization is .200. This value means that if independent variable, Instructional Organization, increased by one unit then the dependent variable, Student Mean Achievement in reading, would increase by .200 of a unit, if other variables were kept constant.

1. Regression equation #1

Regressed School Governance (X_2) on Socioeconomic Composition (SEC) of School (X_5) and the Gender of the Principal (X_6). This regression yielded a beta coefficient for X_2 on X_5 of .033, and X_2 on X_6 of -.050. These standardized beta coefficients were not statistically significant.

2. Regression equation #2

Regressed School Culture and Climate (X_3) on Socioeconomic Composition (SEC) of the school (X_5) and the Gender of the Principal (X_6). This regression yielded a beta coefficient for X_3 on X_5 of .043 and X_3 on X_6 of -.050. These beta coefficients were not statistically significant.

3. Regression equation #3

Regressed Instructional Organization (X_4) on Socioeconomic Composition (SEC) of the school (X_5) and the Gender of the Principal (X_6). This regression yielded a beta coefficient for X_4 on X_5 of .063 which was not statistically significant. The beta coefficient for X_4 on X_6 was statistically significant at the .05 level (beta = -.086, $p < .05$).

4. Regression equation #4

Regressed Reading Achievement and Gain (X_1) on School Governance (X_2). This regression yielded a beta coefficient of .089 for student gains and -.046 for student achievement. These beta coefficients were not statistically significant.

5. Regression equation #5

Regressed Student Reading Achievement and Gain (X_1) on School Climate (X_3). This regression yielded a beta coefficient of -.063 for student gains and -.163 for student achievement. The beta coefficient for student gains was not statistically significant. The beta coefficient for student achievement was statistically significant at the .01 level (beta = -.163, $p < .01$).

6. Regression equation #6

Regressed Student Reading Achievement and Gain (X_1) on the Instructional Organization of the school (X_4). This regression yielded a beta coefficient of .025 for student gains and .200 for student achievement. The beta coefficient for student gains was not statistically significant. The beta coefficient for student achievement was statistically significant at the .01 level (beta = .200, $p < .01$).

Table 9 reports the calculated standardized coefficients (betas) for the path model used in the research. Coefficients of Determination (R^2) are included in the table and measure that part of the variance of the response that is explained by the regression equation. A high Coefficient of Determination implies that the regression substantially explains the variation of the response. Student Achievement (ACH) has a high Coefficient of Determination ($R^2 = .679$). Figure 4 shows the coefficients on the paths between variables. The coefficient for each of the three constructs, School Governance (GO), School Climate (SC), and Instructional Organization (IO) was calculated using the grand sum of the responses for all respondents on individual questions within the construct.

The significance of the standardized beta coefficients are reported in Table 10.

TABLE 9
PRINCIPAL BEHAVIORS AND STUDENT OUTCOMES

Dependent Variable**	Independent Variables					Constant	R ²
	SEC	GENDER	GO	SC	IO		
	Standardized Coefficients (Beta)						
GO	.033	-.050					
SC	.043	-.050					
IO	.060	-.086					
GAIN	-.291	.043	.089	-.063	.025		
ACH	-.861	-.024	-.046	-.163	.200		
	Regression Coefficients*						
GO	.132	-.518				35.040	.003
	(.165)	(.426)					
SC	.242	-.717				48.532	.004
IO	.263	-.968				35.008	.010
	(.178)	(.459)					
GAIN	-2.136	.815	.162	8.195E-02	4.209E-02	21.892	.086
	(.290)	(.750)	(.147)	(.120)	(.128)		
ACH	-14.204	-1.099	-.201	-.507	.800	743.217	.679
	(.408)	(1.055)	(.207)	(.169)	(.179)		

*Standard errors shown in parentheses

**SEC = School Socioeconomic Composition (% Free Lunch), GENDER = Male or Female Principal, GO = Governance, SC = School Climate, IO = Instructional Organization, ACH = 3 year average mean achievement scores, GAIN = 3 year average gain scores

TABLE 10
SIGNIFICANCE OF REGRESSION COEFFICIENTS

Dependent Variables***	Independent Variables				
	SEC	GENDER	GO	SC	IO
Standardized Coefficients (Beta)					
GO	.033 (.423)	-.050 (.224)			
SC	.043 (.294)	-.050 (.228)			
IO	.060 (.140)	-.086 (.035)*			
GAIN	-.291 (.000)**	.043 (.278)	.089 (.270)	-.063 (.497)	.025 (.742)
ACH	-.861 (.000)**	-.024 (.298)	-.046 (.331)	-.163 (.003)**	.200 (.000)**

* significant at $p < .05$ level

** significant at $p < .01$ level

***SEC = School Socioeconomic Composition (% Free Lunch), GENDER = Male or Female Principal, GO = Governance, SC = School Climate, IO = Instructional Organization, ACH = 3 year average mean achievement scores, GAIN = 3 year average gain scores

The research questions were answered based on the path coefficients (standardized betas) in the model.

Research Question #1 The first research question asked: What are the relationships between the gender of the principal and the socioeconomic characteristics (SEC) of the school, and the principal leadership constructs of School Governance (GO), School Climate (SC) and the school Instructional Organization (IO)?

Neither SEC or Gender (G) significantly affect School Governance (GO). School Climate (SC) was not directly influenced by SEC or Gender (G). Gender does not produce changes in School Governance (GO) or School Climate (SC). The beta coefficient on the path between Instructional Organization (IO) and Gender (G) $-.086$ is statistically significant at the $p < .05$ level. This suggests that gender (female) may have a slight effect on the Instructional Organization (IO) of the school.

Research Question #2 The second research question asked: Do these variables have a significant effect on the three-year average reading gain and mean achievement scores of fourth grade students?

The regression coefficients for the path analysis indicate that there was a statistically significant relationship between Instructional Organization (IO) ($\beta = .200$, $p < .01$) and Achievement (ACH). Likewise, the School Climate (SC) variable ($\beta = -.163$, $p < .01$) statistically explained an increase in Achievement (ACH). Therefore, School Climate (SC) and the school's Instructional Organization (IO) help explain higher student achievement in fourth grade reading.

Student gain scores were not significantly explained by either School Governance (GO), School Climate (SC) or Instructional Organization (IO).

Written Responses

Unsolicited comments written on the questionnaires were collated and grouped according to the construct referred to in the response. No additional information about the constructs was obtained from a review of the comments.

V. SUMMARY

This study sought to determine relationships between the antecedent variables of Gender (G) and Socioeconomic composition (SEC) of the school and the mediating variables of School Governance (GO), School Climate (SC), and School Instructional Organization (IO) to Student Achievement (ACH) and Student Gain (GAIN) scores in fourth grade reading. The results of this analysis suggest that there was a statistically significant ($p < .01$) causal relationship between the dependent variable of Student Achievement (ACH) and School Climate (SC) ($\beta = -.163$). A change in School Climate (SC) produced a change in Student Achievement (ACH). In addition there was a statistically significant ($p < .01$) causal relationship between Instructional Organization (IO) and Student Achievement (ACH) ($\beta = .200$). To a lesser degree ($p < .05$) there was a statistically significant relationship between the Gender (G) of the principal and the Instructional Organization (IO) of the school ($\beta = -.086$). No significant relationships

were detected between any of the other mediating variables and student gain scores. The conclusions and recommendations based on these findings will be discussed in the next chapter.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

**Tho' much is taken, much abides; and tho' we are not
now that strength which in old days moved earth and
heaven; that which we are, we are; one equal temper of
heroic hearts made weak by time and fate, but strong in
will to strive, to seek, to find, and not to yield.**

Alfred Lord Tennyson, Ulysses

I. INTRODUCTION

This chapter summarizes the study and the findings related to the two questions that directed the research: (1) What are the relationships between the gender of the principal and the socioeconomic characteristics (SEC) of the school, and the principal leadership behavior constructs of School Governance (GO), School Climate (SC), and the school's Instructional Organization (IO) ? (2) Do these variables have a significant effect on the three-year average reading gain and mean achievement scores of fourth grade students? The chapter is organized into four sections. Section one contains the introduction. Section two summarizes the study and the findings of the study. The third section contains the conclusions of the research. The fourth and final section contains implications and recommendations for further study.

II. SUMMARY

The purpose of this study was to describe the relationships between the gender of the principal, the socioeconomic composition of the school, certain behaviors of elementary school principals, and the academic gains and achievement scores of fourth grade students. The review of the principal effects literature in Chapter II built the theoretical base for the study and suggested the important contributions of this study. First, this study included schools with mid-range student outcomes. Secondly, this study used three-year average student gain and achievement data in reading as the measure of student outcomes. The use of mid-range schools in the sample and longitudinal gain data are unique to this study.

Data were collected for analysis from 96 schools containing the fourth grade. Schools representing five categories of student outcomes were included in the sample. Schools were organized into those with three -year average student outcomes of Low Achievement-High Gain, High Achievement-High Gain, High Achievement-Low Gain, Low Achievement-Low Gain and Mid Achievement-Mid Gain student scores on an annual statewide test.

Six teachers and the principal of 110 schools were asked to complete the Administrative Leadership Profile. The ALP, developed by Ronald Heck in 1990, contains 27 questions that measured three key constructs. The three constructs included in the ALP were School Governance (GO), School Climate (SC), and Instructional Organization (IO) of the school. The questionnaire included four demographic variables.

These variables were years of teaching experience, years the principal had been at the school, percent of students at the school qualifying for free lunch, and the gender of the principal.

Given that there was strong theoretical support for the constructs used in the research and that the research questions asked about causal relationships in a theoretical model, a multiple regression, path analysis was used to analyze the data. The grand sum of each of the three constructs was used to calculate the path coefficients for each of the variables. The data were compiled and analyzed using the Statistical Package for the Social Sciences (SPSS version 7.5).

Findings

The significant findings of the study follow:

1. There was a statistically significant ($p < .01$) positive relationship between the three-year average Achievement (ACH) scores of students and the Instructional Organization (IO) of the school ($\beta = .200$). The more the principal was engaged in behaviors with teachers that were associated with instruction in the school, the higher the achievement level of students.
2. There was a slightly less significant ($p < .05$) small negative relationship between the Gender (G) of the principal and the Instructional Organization (IO) of the school ($\beta = -.086$). Female principals were slightly more likely to be involved in instructional organization behaviors than male principals.
3. There was a significant ($p < .01$) slightly negative relationship between the three-year average Achievement (ACH) scores of students and the School Climate (SC)

(beta = -.163). A change in School Climate did bring about a very small change in student Achievement (ACH). What is at play here is not certain. This result may reflect limitations in the questions relating to this construct used in the ALP instrument.

4. No significant causal relationships (paths) were shown between the gain (GAIN) scores of students and any of the variables included in the model used in the study. This was puzzling because the correlational analysis indicated that there was a significant ($p < .01$) positive relationship between the variables Student Gain (GAIN) and Student Achievement (ACH) $r = .294$. The small gain coefficients may be due to the relative limited magnitude of the gains in the sample.

5. The influence of School Governance (GO) on student Achievement (ACH) was not significant. The governance system set up in the school by the principal had little apparent influence on Student Achievement (ACH) or Student Gain (GAIN). Neither a participatory nor autocratic system of governance did much to improve student academic outcomes.

III. CONCLUSIONS

Based on the analysis of the data and the subsequent findings, five conclusions were reached. First, the more involved the principal is in the behaviors associated with the instructional organization of the school, the greater the likelihood students will have higher achievement in reading. The finding of the causal relationship between Student Achievement (ACH) and the principal's Instructional Organizational (IO) behaviors

($\beta = .200$) support a key finding of the effective schools literature. The more engaged the principal is in instructional design and activities in the school the more effective the school (Lezotte and Brookover, 1977; Edmonds 1979). Much of the criticism of the effective schools, principal's effect literature was focused on the direct effect design of the research during the effective schools era (Bossert, 1982; Glassman and Heck, 1987). This study provided support of a key element of the effective schools research by using an indirect model. It has been suggested that high achieving students may free principals to do things differently, and thus achievement could be considered an independent variable that affects principal behaviors, especially instructional organization (IO). This is an idea that could be considered in future research. The importance of the Instructional Organization (IO) behaviors of the principal to student Achievement (ACH) in a school can be generalized to average schools because the data include schools with average student achievement and gains.

The second conclusion is similar to the first but it concentrates more on the relationship of the gender of the principal and the instructional organization of the school. The second finding of this study found a small, slightly less significant ($p < .05$) negative, causal relationship between the gender of the principal and the instructional organization of the school ($\beta = -.086$). The interpretation of this finding suggests that gender has a slight effect on the instructional organization of the school. This tends to support the earlier work of Gross and Trask (1964, 1976), Adkison (1981), and Hallinger and Murphy, (1985) and underscores the importance of the behavior of becoming involved in the instructional organization of the school.

The third conclusion is that there is a statistically significant slightly negative causal relationship between Student Achievement (ACH) in reading and the School Climate (SC) of the school ($\beta = -.163$). The coefficient ($\beta = -.163$) was statistically significant ($p < .01$), however, the coefficient was relatively small. This result could have reflected limitations in the instrument or it may have represented a possible curvilinear relationship between School Climate and Achievement. In other words, either extreme of the School Climate continuum may result in negative student achievement. The uncertainty of this finding calls out for future studies in this area.

The fourth and surprising conclusion was that three year average gain (GAIN) scores of students in reading were not significantly related to principal behaviors. Improved Student achievement (ACH) was explained in several of the relationships such as School Climate (SC) and Instructional Organization (IO), but the significant causal relationship disappears with student gain (GAIN) scores and principal behaviors. The disappearance of this relationship may be due in part to the small variance in the gain (GAIN) scores of the five categories of school types used in the sample. More research in regard to principal behaviors and student gain scores is needed.

Finally, the fifth conclusion of the study was that there was no significant causal relationship between the construct of School Governance (GO) and student outcomes. Other research (Hallinger and Murphy, 1986) suggested that SEC might have an effect on the governance of a school and thus the achievement of students. It was suspected that the more autocratic the style of governance in the school the lower the student outcomes would be. Conversely, the more participatory governmental structure the higher the

student academic outcomes. This study did not support either of these scenarios. The type of governance did not significantly influence student academic outcomes.

IV. RECOMMENDATIONS

The findings of this research result in several recommendations.

1. Principal preparation programs should review their curricular programs to assure that they include appropriate training in behaviors important to improving the instructional organization of schools.
2. Principal preparation programs should continue to encourage more individuals with a strong instructional background to select careers in the principalship.
3. Principal evaluations should be reviewed to assure that they contain criteria about the instructional organization of the school.
4. School budgets should contain funding to allow current principals to strengthen their instructional organization behaviors.
5. Continue to use mid-level schools in research samples like this study, so that generalizations of the results can be made to the total population.
6. Further research should be done in the specific area of student gains in academic areas to determine if this is a useful way to indirectly measure effective principal behaviors.
7. Future studies should consider adjusting the model so that student achievement becomes an independent variable affecting principal behavior.

8. Further research should be done to examine the apparent slightly negative causal relationship between School Climate and Student Achievement.

9. Consideration should be given to develop a single index by which to measure a school's student outcomes in both achievement and gains. Is there a way to combine both scores into a single measurement of a school's performance?

10. The indirect model used in this research did not indicate any significance of SEC on student outcomes. However, if student outcomes are regressed only on SEC there is a significant impact (see Table 10). Further research should be done to see if the three principal behaviors, used in the model, might have a mediating effect on the impact of SEC on student outcomes.

11. Further research should be done to look for differences in principals' behaviors based on the type of student outcome school. For instance, do the behaviors of High Achievement/ High Gain school principals differ from the behaviors of High Achievement/ Low Gain school principals? The availability of the TVAAS data, a long term data base, on both student achievement and gain makes such research possible.

In conclusion, principal behaviors in instructional organization do indirectly affect the academic achievement of their students. The principals that lead our elementary schools into the next millennium must demonstrate instructional organization behaviors such as organizing the school for instruction, making frequent classroom visits, planning instruction, monitoring instruction and evaluating the learning activities in the school.

It is reasonable to expect evaluation criteria and performance contracts for principals to include components of instructional organization. Principal preparation

programs and professional development programs for current principals should continue to refine their training in both areas. Principals must develop and implement the behaviors that support improved student academic performance to insure the best learning opportunities for their students.

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APPENDICES

APPENDIX A
QUESTIONNAIRE

ADMINISTRATOR LEADERSHIP PROFILE*

In the following profile, we would like to find out about the leadership practices of your school's principal during the past school year. Our goal is to understand more clearly how principals may contribute to school effectiveness and improvement. Please indicate your relative agreement or disagreement with each statement. Use the following guide (SD = STRONGLY DISAGREE, D = DISAGREE, N = NEUTRAL, A = AGREE, SA = STRONGLY AGREE).

I. School Governance

The school principal:

- | | | | | | | |
|----|--|----|---|---|---|----|
| 1. | Knows and understands the problems of the school. | SD | D | N | A | SA |
| 2. | Involves staff members in important decisions. | SD | D | N | A | SA |
| 3. | Involves parents in committees and various school projects. | SD | D | N | A | SA |
| 4. | Works to reduce administrative classroom interruptions so teachers can focus on instruction. | SD | D | N | A | SA |
| 5. | Is responsive to parent concerns and requests. | SD | D | N | A | SA |
| 6. | Establishes positive and cooperative relationships with other organizations and agencies in the community. | SD | D | N | A | SA |
| 7. | Stresses teamwork and collaboration in decisions to solve problems. | SD | D | N | A | SA |
| 8. | Works effectively with site councils or advisory boards to set policy for the school. | SD | D | N | A | SA |

Specific comments about the principal's leadership effectiveness in this area.

I. School Climate

The school principal:

9.	Has helped articulate a school vision and purpose which is communicated to staff.	SD	D	N	A	SA
10.	Is supportive and encouraging to staff and parents.	SD	D	N	A	SA
11.	Portrays self-confidence on the job.	SD	D	N	A	SA
12.	Establishes effective two-way communication with staff and parents about school-related matters.	SD	D	N	A	SA
13.	Works to establish a safe and orderly environment.	SD	D	N	A	SA
14.	Provides praise and recognition to staff members.	SD	D	N	A	SA
15.	Uses human relations skills to help mediate and resolve conflicts.	SD	D	N	A	SA
16.	Is easily approached by teachers with problems they have.	SD	D	N	A	SA
17.	Encourages innovation and risk taking.	SD	D	N	A	SA
18.	Establishes high expectations for student learning and performance.	SD	D	N	A	SA
19.	Encourages motivation and commitment to the educational purposes of the school.	SD	D	N	A	SA

Specific comments about the principal's leadership in this area.

III. Instructional Organization

The school principal:

20.	Works with teachers to provide staff development activities.	SD	D	N	A	SA
21.	Works with teachers to coordinate the school's program and curriculum improvement efforts.	SD	D	N	A	SA
22.	Makes regular classroom visitations and provides feedback and strategies to improve instruction.	SD	D	N	A	SA
23.	Works with teachers to establish and maintain effective classroom management.	SD	D	N	A	SA
24.	Helps to provide teachers with necessary resources to be successful in their instructional activities.	SD	D	N	A	SA
25.	Helps to develop school goals for performance.	SD	D	N	A	SA
26.	Uses a variety of data to help monitor and improve the school's academic performance.	SD	D	N	A	SA
27.	Provides leadership in planning and implementing programs to meet school needs.	SD	D	N	A	SA

Specific comments about the principal's leadership in this area.

IV. Background Questions to Interpret the Data

28. Years of teaching experience at this school. _____
29. Years the principal has been at this school. _____
30. Percentage of students on Free and Reduced price lunch (check one)
_____ 0-29% _____ 30-49% _____ 50-69% _____ 70-89% _____ Above 90%
31. The gender of the principal is: _____ Female _____ Male

If you would like to make any additional comments about how principals contribute to school effectiveness and school improvement, please do so in the space provided below.

Thank You For Your Time and Effort. Your Contribution To Our Research Is Greatly Appreciated.

*Used with permission from the author.

APPENDIX B
PHONE DIALOGUE

Phone Dialogue With Principals

Hello. I'm principal of Willow Brook Elementary School in East. Tennessee, a 45-15----K-4 school. How are you today? As a principal I know how busy you are- I need about 5 minutes of your time to explain a project that I am working on - is this a good time or should I call back?

My name is Craig Rigell - not only am I a principal, but I'm also completing my doctoral program at UTK and I need your help with this statewide study of elementary schools. My dissertation is on principal leadership behaviors and student achievement. This involves a short 10 minute questionnaire that I need you and six of your veteran teachers to complete.

The questionnaire asks 27 questions about three areas that research suggests might be important to student achievement. The three areas are school climate, organization of instruction and school governance. Four other questions ask about important demographic information.

Would you be able to help?

Let me verify some of the information that the State Dept. Of Education gave me. The spelling of your name is _____. Have you been the principal of the school at least four years?

Would you like the school secretary to collect the seven surveys and send them back to me? If yes, please spell her name for me _____. If not - who would you like to do this?

All return materials and postage will be provided - so it will be just a matter of collecting the seven surveys-putting them in the envelope provided and placing them in the outgoing U.S. mail.

Thank you for your help with this and if there is anything I can do for you please let me know.

APPENDIX C

LETTER TO PRINCIPAL

Dear Principal,

Thank you for agreeing to allow your school to participate in this short, unique survey about our work as principals. I am beginning my 25th year in public education (my eleventh year as an elementary school principal) and am a candidate for the Ed.D degree in Leadership Studies at the University of Tennessee in Knoxville. My dissertation is on principal behaviors and student achievement. This short questionnaire is part of my research.

When we spoke on the phone you mentioned that the school secretary would be able to collect the surveys and return them to me in the enclosed postage paid envelope. Please give a packet to six teachers who have worked at your school for the last four years. To choose your teachers, use an alphabetical listing by last names of your veteran teachers, number the list, then select teacher numbers 14,6,5,8,13, and 3 to receive a survey packet.

Once you have selected the teachers, please give them one of the enclosed packets. They will return their completed survey in a sealed envelope to your secretary. Please complete your questionnaire (using #2 pencil). Answer the questions based on the current situation in your school.

The questionnaire asks 27 questions about three areas that research suggests might be important to student achievement in school. The three areas are: the school's climate, how the school is organized for instruction, and how the school is governed. Four other questions ask about important demographic information. From this research we hope to learn more about how these areas might indirectly improve student performance.

When you have completed the survey, please **seal it in the envelope** provided and give it to your school secretary. The secretary will gather the surveys and mail them back to me in the sealed envelopes. Your responses will be confidential. After a school has responded, all identification on the surveys will be removed and destroyed. School responses will be combined with other schools from across Tennessee. You may withdraw from the study at any time without penalty. **Individual school responses will not be reported.**

I have asked the teachers to complete the survey and turn it in to your secretary within a week. Please return the entire packet to me within two weeks.

Once again let me thank you for your time, and if I can answer any questions please feel free to contact me. Also, if you would like a copy of the final research results, let me know and I will be happy to send you a copy. I can be reached at the above address and phone number or my home phone is (423)482-6495 and my e-mail address is crigell@mail.oak-lea.anderson.k12.tn.us

I have enclosed a small gift to you and your secretary in appreciation for your help. Please use the enclosed dollar to treat yourself to a well deserved snack after one of our typical 60 hour weeks. Have a great school year!

Sincerely,

Craig D. Rigell
Principal

Enclosures

APPENDIX D

LETTER TO TEACHER

Dear Teacher,

Thank you for taking the time out of your busy schedule to complete the short seven minute questionnaire. I am beginning my 25th year in public education (my eleventh year as an elementary school principal) and am a candidate for the Ed.D degree in Leadership Studies at the University of Tennessee in Knoxville. My dissertation is on principal behaviors and what effect they may have on student achievement. This short questionnaire is part of my research.

The questionnaire asks 27 questions about three areas that research suggests are important to schools. The three areas are: your school's climate, how the school is organized for instruction, and how the school is governed. Four more questions ask for important demographic data. Please answer the questions (**using #2 pencil**) based on how things are today in your school. Because of your participation on this survey, we hope to learn more about how these three areas indirectly affect student outcomes.

When you have completed the survey, **seal it in the envelope** provided and give it to your school secretary. The secretary will gather the surveys in the sealed envelopes and mail them back to me. You are one of six teachers in your school, chosen at random, that is being asked to complete the survey. Your responses will be confidential. You may withdraw from the study at any time. Each survey is coded so I can keep track of who has responded, but after a school has responded, all identification on the survey will be removed and destroyed. School responses will be combined with other schools from across Tennessee. Individual school responses will not be reported.

If at all possible, please complete this short survey and turn in to your school secretary within the next week.

Once again let me thank you for your time, and if I can answer any questions or be of any help, please feel free to contact me. Also, if you would like a copy of the final research results let me know and I will be happy to send you a copy. I can be reached at the above address and phone number, or my home phone is (423)482-6495, and my e-mail address is **crigell@mail.oak-lea.anderson.k12.tn.us**

Please keep the Daniel Webster quote as a small thanks for your time and effort. It always reminds me about the importance of our profession. I hope you are having a great school year!

Sincerely,

Craig D. Rigell
Principal

Enclosures

APPENDIX E

COMPARISON OF RESPONDENT AND

NON RESPONDENT SURVEY RESULTS

TABLE 11
COMPARISON OF RESPONDENT AND
NON RESPONDENT SURVEY RESULTS
MEAN

Construct*	Question Number	Respondent Survey	Non Respondent Survey
GO	02	4.21	4.08
GO	04	4.35	4.10
GO	07	4.27	3.95
SC	13	4.31	4.13
SC	16	4.16	3.82
SC	17	4.30	4.18
SC	19	4.50	4.21
IO	22	4.34	4.17
IO	26	4.39	4.20
IO	29	4.35	4.20

*GO = Governance, SC = School Climate, IO = Instructional Organization

VITA

Craig DeWitt Rigell was born in Gainesville, Florida on August 6, 1947. He graduated from Baltimore Polytechnic High School in Baltimore, Maryland in 1965. He earned a Bachelor of Arts degree in History from Maryville College, Maryville, Tennessee in 1969. He served in the United States Army Medical Corps from 1969 to 1972 as a medic and Anatomy and Physiology instructor in the Brooke Army Medical Field Service School at Fort Sam Houston, Texas. In 1973 he accepted employment at Blount Memorial Hospital in Maryville, Tennessee where he designed and taught the hospital's first Operating Room Technician course. In the fall of 1975 he began teaching with the Oak Ridge Schools in Oak Ridge, Tennessee, as a science teacher at Jefferson Junior High School.

He entered the Master's program in Curriculum and Instruction in 1974 at the University of Tennessee and was awarded the Masters of Science degree in 1976. In the fall of 1978 he was selected as an Administrative Intern for the Oak Ridge Schools assigned to Robertsville Junior High School. In 1979 he was employed as vice principal of Robertsville Junior High School, where he served in that capacity until 1988. During this time he was also the Director of the Oak Ridge Schools Wilderness Program.

In 1988 he was appointed principal of Willow Brook Elementary School where he continues to serve in that capacity. Under his leadership, Willow Brook School voluntarily changed from a traditional school calendar to a single track 45-15 year round calendar in the summer of 1997.

In June of 1992 he entered the Graduate School at the University of Tennessee in the inaugural Danforth Leadership Studies doctoral program. He received the Doctor of Education degree with a major in Leadership Studies in May, 1999.

He is a graduate of the Norham Center for Leadership Studies, St. Peter's College of Oxford University, England and both the Colorado and North Carolina Outward Bound Schools.

He has consulted with numerous public schools, U.S. Office of Personnel Management's Executive Leadership Training Center, Department of Energy, the Tennessee Valley Authority, and nationally recognized private companies such as Alcoa, Lockheed Martin, Martin Marietta, Duron Paints, John Deere and Duracell corporations, to name a few. He has also taught skiing for seventeen years. He was a Tennessee finalist for the Teacher in Space program in 1987.

His professional affiliations include National Education Association, National Association of Elementary School Principals, National Association of Year Round School, Tennessee Principals Study Council and the Professional Ski Instructors of America.

He is married to Ann L. Rigell, a human resources manager, and has two children, Ginny Rigell, a third grade teacher in Cherokee County, Georgia, and Allen Rigell, a sophomore at Emory University in Atlanta, Georgia.