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Principal and Teacher Perceptions of School Climate Related to Value-added Assessment and Selected School Contextual Effects in the First Tennessee District

Diann B. Casteel

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Principal and teacher perceptions of school climate related to value-added assessment and selected school contextual effects in the First Tennessee District

Casteel, DiAnn B., Ed.D.

East Tennessee State University, 1994

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PRINCIPAL AND TEACHER PERCEPTIONS OF SCHOOL CLIMATE
RELATED TO VALUE-ADDED ASSESSMENT AND
SELECTED SCHOOL CONTEXTUAL EFFECTS
IN THE FIRST TENNESSEE DISTRICT

A Dissertation
Presented to
the Faculty of the Department of Educational Leadership and Policy Analysis East Tennessee State University

In Partial Fulfillment
of the Requirements for the Degree Doctor of Education

by
DiAnn B. Casteel
August 1994
APPROVAL

This is to certify the Advanced Graduate Committee of

DiAnn B. Casteel

met on the


The committee read and examined her dissertation, supervised her defense of it in an oral examination, and decided to recommend her study be submitted to the Graduate Council and the Associate Vice President for Research, School of Graduate Studies, in partial fulfillment of the requirements for the degree Doctor of Education in Educational Administration.

Chairperson, Advanced Graduate Committee

Signed on behalf of the Graduate Council

Associate Vice President for Research and Dean, School of Graduate Studies

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ABSTRACT

PRINCIPAL AND TEACHER PERCEPTIONS OF SCHOOL CLIMATE RELATED TO VALUE-ADDED ASSESSMENT AND SELECTED SCHOOL CONTEXTUAL EFFECTS IN THE FIRST TENNESSEE DISTRICT

by

DiAnn B. Casteel

The problem related to this study was to develop a clearer understanding of organizational climates in K-8 schools in Tennessee and the relationship that climate has to school performance, as measured through value-added assessment. The purpose of this study was to identify relationships between dimensions of school climate and student achievement as measured by mandated value-added assessment at the third grade level in Tennessee. The study attempted to determine if there was a significant difference between principal and teacher perceptions of school climate and if a relationship existed between the school climate and value-added assessment. The study also endeavored to determine if school contextual effects (demographics) had any effect on the school climate and/or value-added assessment.

Superintendents in the 17 school systems in the First Tennessee District were given the opportunity to allow schools to participate in this study. Fifty-five schools agreed to respond to the Profile of a School (POS) survey instrument containing 50 questions. Information regarding value-added assessment for these schools was obtained from the Tennessee State Department of Education. Four research questions were answered, and four hypotheses with subparts stated in null form were tested using the two-sample t-test, Pearson Product Moment Correlation, analysis of variance with omega squared, and multiple regression analysis. All null hypotheses were retained expect the hypothesis related to principal and teacher perceptions of school climate.

There was a significant difference in principal and teacher perceptions of school climate as measured by the overall POS score, two of the four major areas of the POS (Climate and Leadership), and 7 of the 17 (Decision Making, Communication, Coordination, Influence, Team Building, Work Facilitation, and Encouragement of Participation) primary areas. The correlations did not demonstrate statistical significance between value-added assessment and any of the other variables (POS and/or school contextual effects).
INSTITUTIONAL REVIEW BOARD
This is to certify that the following study has been filed and approved by the Institutional Review Board of East Tennessee State University.

Title of Grant or Project Principal and Teacher Perceptions of School Climate Related to Value-Added Assessment and Selected School Contextual Effects in the First Tennessee District

Principal Investigator DiAnn B. Casteel
Department Educational Leadership and Policy Analysis

Date Submitted February 17, 1994

Institutional Review Board, Chairman
DEDICATION

This research project is dedicated to the following:

To Ken Casteel, my husband, my love, my Vietnam hero, the 'wind beneath my wings';

To Trisha DiAnn Casteel, Mary Camille Casteel, and Cheyenne James Casteel, our children, beautiful beings, our hope for the future, my great supporters along the way;

To Harold James Brown, my Papa, the one who taught me a deep love and appreciation for the mountains and her people;

and to Virginia Elizabeth Cooter, my sister, my guiding light, who provided a warm heart to listen throughout long hours.
ACKNOWLEDGMENTS

Appreciation and praise is offered unto God for walking with me hand in hand throughout this journey of faith.

This writer wishes hereby to acknowledge appreciation and everlasting gratitude to the following:

To Dr. Marie Hill, for guiding my studies and research throughout my doctoral program and helping me to learn to examine issues through another point of view;

To Dr. Donn Gresso, for modeling the administrative culture that is necessary for our future;

To Dr. Robert McElrath, for allowing me to sit at the feet of a master and benefit from his expertise;

To Dr. Michael Marchioni, for sharing with me his deep love of knowledge and his desire to share it with others;

To Dr. W. L. Sanders, for allocating time to personally discuss value-added assessment at length;

To the faculty and staff of Doak Elementary School, John Howe, Principal, for their encouragement and support throughout the challenges and triumphs of my studies;

To John M. Jones, publisher, The Greeneville Sun, for providing hope and inspiration over the years that it is possible to reach for and touch the stars;

To Dr. Herbert J. Lamons, DDS, for ceaselessly encouraging my community involvement and advanced studies;
To Mohan Lal Gupta and family and M. Gautam, Hyderabad, India and A. David Raju, Chirala, India, my friends who taught me much about our ever shrinking world;

and to Jack Archer and Patrick Sneed who patiently shared their knowledge of computers and other technology with me, without which this research would have been near impossible.
DISCLAIMER

This research document represents a body of data drawn from a certain point in time which is susceptible to change. Additional studies completed in the future may yield diverse results.
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CHAPTER 1

Introduction

Excellence in organizational performance is greatly influenced by the organization's climate (Sweeney, 1992; Hoy & Tarter, 1992; Coladarci & Donaldson, 1991; Pariso, 1991; & Stevens, 1990). The climate of a school is "the set of internal characteristics that distinguishes one school from another and influences the behavior of its members" (Hoy & Tarter, 1992, p. 74). School climate is usually identified through teachers' perceptions of the work environment of the school.

School climate is influenced by the formal organization, informal organization, personalities of participants, and organizational leadership. The formal organization of the school is viewed as the "grouping practices, departmentalization, authority structures, role definitions, etc. that one finds within a school" (Keefe, Kelley, & Miller, 1985, p. 72). The informal organization encompasses "personal relationships and behaviors, explicit and implicit reward structures, socialization practices, and status and power relationships in the school" (p. 72). The personalities of the participants refer to characteristics of the group (disengagement, hindrance, esprit, and intimacy) and behaviors of the leader (aloofness, production emphasis, thrust, and consideration) (Hoy, Tarter, &
Kottkamp, 1991). Organizational leadership refers to purposeful actions that make happen what you believe in. One of the highest purposes a school can fulfill is to teach all its members that they can make what they believe in happen (Barth, 1990).

The climate of a school makes a difference in student performance or achievement (Sweeney, 1992). Recent research regarding school climate has fostered a renewed interest in the significance of the educational environment in which outstanding teaching and learning occurs (Johnson & Johnson, 1992). A robust environment strengthens student outcomes, fosters proper morale, and supports positive learning and working conditions (Rojewski, Wendel, McInerny, Currin, & Smith, 1990). School climate is often interpreted in terms of organizational effectiveness.

Many parents and other citizens, government policy makers, and scholars interpret organizational effectiveness narrowly (Hoy & Miskel, 1991). Hoy and Miskel (1991) maintained that:

Student achievement is an important indicator of goal attainment. Moreover, so many influential constituencies believe in the intrinsic value of student achievement as measured by standardized achievement tests that administrators and teachers must address questions about what factors in schooling lead
to higher test scores (pp. 385-386).

Bidwell and Kasarda (1975) stated, "While the goals of schooling are many and vague, the academic attainment of students is clearly among them. Moreover, it is the only output of schools and school districts that is widely and publicly measured" (p. 57). Schools with high levels of achievement enhance the lives of personnel who work in them as well as those whom they serve (Sweeney, 1992).

Recognizing academic achievement as one of the most generally accepted measures of school effectiveness, the Tennessee General Assembly passed the Education Improvement Act of 1991 (EIA). The EIA created a system to measure effectiveness of school systems, individual schools, and individual teachers (Greeson, 1993).

Conceivably, one of the most distinctive stipulations of the EIA is the requirement to develop a system to measure the effect a teacher, school, or school district has on student learning through an analysis of change in a student's performance over time. This "value-added" measure is obtained from a student's standardized test scores over three years. The system of value-added testing was initiated in 1991-92 using Tennessee Comprehensive Achievement Program (TCAP) test scores for grades three through eight. Value-added scores represent the gain of students during a specific period of time. Therefore,
students are being evaluated according to their progress. An analysis of value-added or gain scores can be made at the level of teacher, school, or school district (Greeson, 1993).

Statement of the Problem

It is important that educational policy makers develop a clear understanding of organizational climates in K - 8 schools in Tennessee and the relationship that climate has to school performance, as measured through value-added assessment.

Purpose of the Study

The purpose of this study is to identify relationships between dimensions of school climate and student achievement as measured by mandated value-added assessment at the third grade level in Tennessee.

Research Questions

The following questions and the related hypotheses will guide the study:
Question 1

Is there a significant difference between principal and teacher perceptions of school climate?

H₁: There is no statistically significant difference between principal and teacher perceptions of the climate of a school as measured by the Profile of a School (POS). Climate scores will be assessed in:
   a. overall POS score, if significant (α=0.05)
   b. 4 major areas, if significant (α=0.0125)
   c. area components

Question 2

What is the relationship between value-added assessments in the third grade in total reading and total mathematics scores and components of school climate?

H₂: There is no statistically significant relationship between value-added assessments in the third grade in total reading and total mathematics scores and the climate of a school as measured by the POS. Climate scores will be assessed in:
   a. overall POS score, if significant (α=0.05)
   b. 4 major areas, if significant (α=0.0125)
   c. area components

Question 3

What is the relationship between value-added assessment in the third grade in total reading and total mathematics scores and school contextual effects?
**H₃:** There is no statistically significant relationship between value-added assessment in the third grade in total reading and total mathematics scores and the following school contextual effects:

a. size of school  
b. socio-economic context of the school (free and/or reduced lunch)  
c. degree of minority enrollment  
d. location of school (urban, suburban, rural)

**Question 4**

How well can the combination of school climate factors and school context effects predict value-added assessment in third grade reading and mathematics?

**H₄:** There is no statistically significant relationship among value-added assessment in the third grade in total reading and total mathematics scores and the following school climate and school contextual effects:

a. school climate components  
   1. 17 primary areas  
   2. 4 major areas  
   3. overall POS score  

b. school contextual effects  
   1. size of school  
   2. socio-economic context of the school (free and/or reduced lunch)  
   3. degree of minority enrollment
4. Location of school (urban, suburban, rural)

Significance of the Problem

Value-added assessment became Tennessee law, impacting grades three through eight, on July 1, 1992, in response to a mandate to improve Tennessee schools. Value-added assessment data is reported to demonstrate individual teacher, school, and district effect on the educational progress of students.

To determine whether a favorable school climate is related to higher levels of effectiveness and efficiency, as assessed through the value-added testing program, is important. There is a need to know the components of school climate and how they relate to school context factors and performance on value-added assessment.

Limitations

1. This study was limited to those elementary schools which serve a third grade population in the First Tennessee District.

2. This study was limited to those elementary schools retaining the same principal for the 1990-91 through 1993-94 school years.
3. This study was limited to total reading scores and total math scores as measures of student academic achievement during the 1992-93 school year.

Definitions

The following definitions apply to this study:

Consensus Central Focus

Consensus central focus is the "pervasive, major mission of the school. To be considered present, the central focus must be able to be articulated by the teachers in the school" (Russell, 1987, p. 5).

Contextual Effects

Contextual effects are those variables that define the population of a school in terms of the size of the school, the socio-economic context of the school, degree of minority enrollment within the school, and the urban, suburban, or rural location of the school.

Effective Schooling

Effective schooling refers to those schools in which learning outcomes improve due to a "schoolwide emphasis on improving instructional skills, the climate supports the learning process, the teaching-learning process is closely monitored, school personnel set high standards, student discipline is maintained, and a safe working environment is provided" (Hanson, 1991, p. 43).
End Results

End results allude to variables that "show the actual performance achieved and include the satisfactions with various aspects of the school environment. There usually is a time lag before the full effects of this causal, intervening, end-result linkage become evident" (Likert & Likert, 1980, p. 53).

Intervening Variables

Intervening variables are those elements within a school that:

reflect the internal state and health of the organization, e.g. the loyalties, attitudes, frustrations, and motivations of all members and their collective capacity for effective interaction, lateral communication, sharing of influence, and decision making. Changes in the state of these intervening variables lag in time behind changes in the causal variable (i.e. Organizational Climate, Supervisory Leadership, and Structure) (Likert & Likert, 1980, p. 53).

Leadership

Leadership is a process in which an individual "unleashes the energy of those within the organization and facilitates this ability to achieve the objectives and goals
that they can believe in and support " (Cunningham & Gresso, 1993, p. 27). Components incorporated within leadership include support, team building, work facilitation, goal emphasis, encouragement of participation, and job performance.

**Perception**

Perception is the "processing of messages by a principal or teacher based on his/her own world" (Waddell, 1989, p. 3).

**School climate**

School climate is a "relatively enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools" (Hoy & Miskel, 1991, p. 221). Climate components encompass decision making, communication, goal commitment, coordination, and influence.

**School Improvement**

School improvement refers to an "examination of the social conditions and process involved in the teaching/learning process" (Brookover, 1988, p. 224) with the aim of enhancing the conditions for learning.

**Value-added assessment**

Value-added assessment is: (1) a statistical system for educational outcome assessment that uses measures of student learning to enable the estimation of teacher, school, and school district statistical distributions, and (2) the
statistical system will use available and appropriate data as input to account for differences in prior student attainment, such that the impact the teacher, school, and school district have on the educational progress of students may be estimated on a student attainment constant basis. The impact that a teacher, school, or school district has on the progress, or lack of progress, in educational advancement or learning of a student is referred hereafter as the "effect" of the teacher, school, or school district on the educational progress of students (Tennessee Code Annotated, 1992, 49-1-603).

Overview of the Study

This study was organized into five chapters. Chapter 1 contains the introduction, statement of the problem, purpose of the study, research questions, definitions, and overview of the study.

Chapter 2 presents a review of selected related literature.

Chapter 3 describes the methods and procedures by which the study was conducted.

Chapter 4 contains the statistical treatment of the data.

Chapter 5 includes the summary, findings, conclusions, and recommendations of the study.
CHAPeR 2

Review of Literature

What Is School Climate?

Researchers are interested in the way schools affect students (Keefe, Kelley, & Miller, 1985). This interest is often described in terms of school climate. The many conceptual and operational definitions of climate and measurement techniques used by researchers to describe climate has prompted some to characterize climate as a "fuzzy" concept (Guion, 1973).

Definitions of climate vary widely. Reichers and Schneider (1990) stated:

Climate is widely defined as the shared perceptions of "the way things are around here." More precisely, climate is shared perceptions of organizational policies, practices, and procedures, both formal and informal. Climate is a molar concept that is indicative of the organization's goals and appropriate means to goal attainment (p. 22).

Other researchers have provided variations to the definitions of climate. Koehler, Anatol, and Applbaum (1976) defined climate "as the spirit of philosophy that
dominates the organization and is responsible for the relationships that exist among the individuals making up the organization" (p.49). Stenson (1985) defined school climate as "the total of the forces to which the individual responds in the school environment" (p. 54). Hoy and Miskel (1991) defined climate as "a relatively enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools" (p. 221).

The environmental quality within an organization was used by Tagiuri (1968, in Forman, 1988) to define climate and atmosphere. The dimensions of school climate Tagiuri included in environment were its ecology (the physical and material aspects), its milieu (the social dimension concerned with the presence of persons and groups), its social system (the social dimension concerned with the patterned relationships of persons and groups), and its culture (the social dimension concerned with belief systems, values, cognitive structures, and meaning).
Some researchers view organizational climate as the relationships between adults within the organization. Others view climate as the degree of order, discipline, or violence within a school setting. The collaborative efforts of Brookover, Beamer, Efthim, Hathaway, Lezotte, Miller, Passalacqua, and Tornatzky (1982) described climate:

as the school learning climate. This is to emphasize that we are concerned with any aspect of the school social system that is associated with the level of student learning. School learning climates are, therefore, characterized by the degree to which they are effective in producing the desired learning outcomes among the students (p. 2).

Lezotte (1984) defined the school learning climate "as
the norms, beliefs, and attitudes reflected in the school's institutional patterns, and behavioral practices that enhance or impede student achievement" (p. 53). This is used to focus attention on those characteristics of climate that are related to levels of school productivity.

Effective schools may be recognized by several attributes. The attribute of a positive school climate appears prominently in the research regarding effective schools (Stronge & Jones, 1991; Vermeulen, 1987; Duignan, 1986; Eubanks & Levine, 1983; Purkey & Smith, 1983; Miskel, Fevurly, & Stewart, 1979). "A winning school climate provides the very foundation for a sound educational program" (Sweeney, 1991, p. 1).

Sweeney (1991) identified 10 essential factors that appear to make a real difference in a school's climate. The 10 essential factors common to schools with winning school climates are:

1. a supportive, stimulating environment
2. student-centered
3. positive expectations
4. feedback
5. rewards
6. a sense of family
7. closeness to parents and community
8. communication
According to Sweeney (1991), schools with a winning climate are concerned with these 10 factors. A supportive, stimulating environment is exciting, challenging, and fun for teachers and students. The school is student-centered and is interested in what is best for the students. Teachers and students expect high standards and expectations. Feedback in these schools is frequent, positive, and candid. In a winning school climate, multiple rewards are showcased. These schools have a sense of family that support new people and activities. A sense of closeness to parents and community in which the school invites feedback and works on community satisfaction is present. Communication is open and information flows in all directions. Personal, classroom, and building level achievement goals are set and tracked to measure success. Trust and respect are key elements in schools with a winning school climate.

School climate is an issue of concern for researchers, although consensus has not been reached regarding an exact definition of school climate. Effective schools and a positive, winning school climate appear to share a common bond. The next sections of the literature review will discuss perceptions regarding school climate, achievement,
and school contextual factors.

**School Climate**

Likert (1967b) stated that "leadership is a relative process in that leaders must take into account the expectations, values, and interpersonal skills of those with whom they are interacting" (p. 43). Leader behaviors and organizational processes must be such as to be perceived by their followers as being supportive of their efforts and enhancing of their own sense of worth (Bass, 1990).

Likert was aware of the friction between management power structures and the power of employee groups within an organization (Hanson, 1991). Researchers concluded from the Hawthorne studies that "the psychological needs of individuals have a significant impact on group performance" (Mondy, Sharplin, & Flippo 1988, p. 25). Mondy, et al. further stated:

much behavioral research supports the thesis that reasonable satisfaction of the needs and desires of employees will lead to greater output. This suggests that any management approach that ignores or deemphasizes the human element may result in only partly accomplished objectives (p. 25).

An organization that uses a high concentration of rules
governing behavior and production often has work norms that are set at minimum levels. In addition, group members often control the behavior of members within their group who might desire to surpass the informally agreed upon production levels (Hanson, 1991). In view of this concern, Likert developed a System 4 organization.

Likert's conceptualization of System 4 contains three primary concepts: 1. supportive relationships, 2. group decision making, and 3. high-performance work norms (Hanson, 1991). System 4 is built upon the theory:

that an organization will be optimally effective to the extent that its processes are such to insure a maximum probability that in all interactions and in all relationships within the organization, each member, in light of his background, values, desires, and expectations, will view the experience as supportive and one which builds and maintains his sense of personal worth and importance (Hanson, 1991, p. 82).

The eight processes within System 4 are the antithesis of those within classical forms of organization, which Likert referred to as System 1. Table 1 compares System 1 (Classical Structure) Organization and System 4 Organization. "Positive associations generally have been found between measures of the organizations' performance and
whether they are closer to democratic systems 3 and 4 than to autocratic systems 1 and 2" (Bass, 1990, p. 430).

When reviewing studies involving 40 school systems, Likert (1977) noted the following conclusion:

1. School surveys of members of boards of education, superintendents, central staff, principals, department heads, teachers, students, and parents demonstrated that school systems that were closer to System 4, when compared to those closer to System 1, exhibited better communications, cooperation, and coordination.

2. They were more flexible and innovative and more effective overall.

3. Their personnel felt a greater sense of self-actualization and satisfaction from their work.

4. They were judged as achieving superior educational results. (Note: the author did not address or specify the form or area of educational results.)

5. They had better board-employee relations and union-management relations.

6. Their students were more highly motivated and attained higher educational achievement for given IQ and socioeconomic levels. (Note: the author did not provide the area or subject under investigation pertaining to the higher educational achievement.)
Table 1

System 1 Organization and System 4 Organization

System 1  Organization and System 4 Organization

<table>
<thead>
<tr>
<th>System 1  (Classical Structure)</th>
<th>System 4</th>
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</table>

1. Leadership processes reveal no trust and confidence in subordinates, who reciprocate in kind. Mutual support does not exist and ideas on solving job problems seldom are offered by subordinates.

2. Motivational forces tap only needs for physical and economic security through the use of threat, punishment, and occasional reward. Attitudes of subordinates are not favorable toward the organization.

3. Communication is downward, initiated from top, limited in scope, and typically viewed with suspicion by subordinates. Upward communication is very limited and often distorted and inaccurate.

4. The interaction-influence process is limited, cooperative teamwork is absent, and subordinates have limited influence on departmental goals, activities, and methods.

5. Decision making is concentrated at the top and far above the level where the best information exists.

6. Goals are set from the top via mandates and are often covertly resisted by subordinates.

7. Control is managed from the top and exercised in a punitive manner.

8. Performance goals and training are cast at average levels with limited training resources.

Adapted from Likert (1967a, pp. 197-211).

7. Their students had more favorable attitudes and were less likely to engage in disruptive behavior or acts of aggression against the schools (p. 433).
"The positive effects of democratic approaches are most apparent if one depends on the results of large-scale field surveys and lagged productivity measurements, rather than on small-group laboratory experiments with immediate, concurrent effects" (Bass, 1990, p. 435). The ensuing information will provide a further understanding of the effects of perceptions regarding school climate.

Waddell (1989) researched the relationship between principals' and teachers' perceptions of the supportive and defensive communication climates as related to student achievement in South Carolina secondary schools. Fifty-six secondary school principals and 1,357 teachers participated in this assessment using the Communication Climate Inventory (CCI). Waddell suggested that a more extensive study should be undertaken using a different instrument. The findings for this study included:

1. There were no significant relationships between principals' and teachers' perception of the communication climate as related to achievement in South Carolina secondary schools.

2. Teachers disagree with principals about the degree that their school climate was supportive or defensive in the school.

3. There was a small but significant number of teachers who responded to some of the questions on the
behavior as uncertain, which led to the conclusion that teachers would not always reveal their true feelings if they perceived it would be harmful to their school (p. iii).

Wren (1992) investigated the relationship between sixth grade students' academic achievement levels in reading and their perceptions of school climate. This study involved 257 sixth grade students in a rural northwest Mississippi junior high school. Data were collected using the NASSP School Climate Survey. Wren concluded results of this research indicate that significant negative correlations exist between the subscale predictors and the reading scores of sixth grade reading students. Suggested by the stepwise multiple regression analysis is that some of the subscales of the survey (see Table 2) results can predict to a functional level the academic achievement scores of sixth grade reading students (p. ii).

Haynes, Comer, and Hamilton-Lee (1989) researched effects of a school improvement program on students', teachers', and parents' perceptions of school and classroom climate, student achievement, and attendance. This study involved 306 students, grades 3-5 from 14 elementary
schools, 98 teachers, and 276 parents participating in the Parent Program developed by the School Development Program staff at Yale University and implemented in an inner-city school system. Teachers' and parents' perceptions of school climate were measured by a school climate survey developed by the School Development Program of the Yale University Child Study Center. Children's perceptions were measured using the Classroom Environment Scale. Conclusions realized in this study include:

1. Parental involvement in schools, even those in the poorest neighborhoods in our inner cities is possible, desirable, and beneficial.

2. The climate of schools is considerably enhanced when parents are included in the planning and organizing of school activities and contribute to important decisions about significant events in the school.

3. The school psychologist has a particularly important part to play in fostering and helping to nurture a healthy relationship between home and school (pp. 89-90).

Valuable insights and unique perspectives which serve to strengthen home-school relationships, student behavior, and academic achievement were offered as possible, desirable, and beneficial outcomes of parental involvement.
in schools (Haynes, Comer, & Hamilton-Lee, 1989). These climate enhancing attributes were considered possible even in the poorest of neighborhoods.

Teachers respond according to their beliefs and perceptions (Hoy & Tarter, 1992). Understanding beliefs of teachers is important in order that principals can have appropriate behaviors. "The principal's perceptions of the health or climate of the school is frequently at variance with the perceptions of teachers" (Hoy & Tarter, 1992, p. 78).

Hoy, Tarter, and Bliss (1990) used two instruments, Organizational Climate Description Questionnaire-Rutgers Secondary (OCDQ-RS) and Organizational Health Inventory (OHI), to measure perceptions of organizational climate. This study used data for the comparative analysis of the OCDQ-RS and the OHI from a sample of 872 teachers in 58 secondary schools in an eastern state. This was not a random sample but did involve 17 of 21 counties. The OHI proved to be a better instrument than the OCDQ-RS for the prediction of school effectiveness. It was noted that "the principal's influence is indirect, provided his or her actions lead to the development of a climate with a strong academic emphasis" (p. 275).

Hoy, et al. (1990) added "healthy schools and open climate may well be desirable ends in themselves. Even if unrelated to other outcome variables, these constructs are
important in their own right" (p. 276). The need is not to determine if the climate is open or closed, healthy or unhealthy, but to search for basic causes in perception inconsistencies.

Miskel, Fevurly, and Stewart (1979) asserted that an argument could be made for the influence of perceived structure or processes on school performance measures. The Structural Properties Questionnaire (SPQ) Form 4, was used to measure school bureaucracy. The POS Form 3 was used to measure processes in the school. The Index of Effectiveness (IOE) was used to measure perceived organizational effectiveness. This study included 78 elementary, 20 junior high, and 16 high schools. Miskel, et al. agreed with Likert's conviction that participative processes are correlated with perceived effectiveness. The following generalizations apply to this investigation:

more effective schools, as perceived by teachers, are characterized by (1) more participative organizational processes, (2) less centralized decision-making structure, (3) more formalized general rules, and (4) more complexity or high professional activity (p. 114).

In sum, school climate is a concept that pertains to the total environment of the school. This environment is the product of the interaction of four material and social
dimensions: 1. ecology, 2. milieu, 3. social system, and 4. culture. "Profile of a School is a climate instrument that taps the school's managerial system (social system and culture indicators), measuring relationships between the principal and teachers. Participative schools have been rated more effective and have higher teacher and student satisfaction" (Kottkamp, 1988, p. 220). Kottkamp did not specify the areas in which the schools were deemed more effective.

Climate perceptions are critical when attempting to understand the total environment of the school. Another significant aspect is how climate relates to student academic achievement. Literature regarding school climate and student academic achievement will be reviewed.

School Climate and Academic Achievement

Purkey and Smith (1983) cited four process variables important to effective schools. The four variables that define the concept of school climate and culture include:

1. Collaborative planning and collegial relationships;
2. Sense of community;
3. Clear goals and high expectations; and
4. Order and discipline.
Purkey and Smith (1983) stated "these variables are the dynamics of the school; that is they seem responsible for an atmosphere that leads to increased student achievement" (p. 445). These researchers suggested a participatory approach based on the concept that the method a school employs to move toward increasing effectiveness is critical. They argue that school-level elements enhance learning in the classroom.

In Anderson's (1982) review of literature regarding school climate, she noted:

the most recurring attitude associated with climate and student outcomes is the level of expectation teachers and administrators hold for each other and especially for students. Without exception, the research portrays the high-achieving school as one in which the staff manifests attitudes of confidence that students will be able to succeed academically. High expectations go hand-in-hand with high achievement. High expectations for student achievement are usually accompanied by an emphasis on (or press for) academics. Rewards and praise in high-achieving schools are frequent and public (p. 403).

Young (1992) used Halpin and Crofts' Organizational Climate Description Questionnaire (OCDQ) to investigate the
relationship between school climate and student achievement in mathematics. The eight individual school climate subscores of the OCDQ are Disengagement, Thrust, Consideration, Hindrance, Esprit, Intimacy, Aloofness, and Production Emphasis. This study surveyed 109 teachers. The number of principals and schools was not given. Young "recommended that the use of the Organizational Climate Description Questionnaire be carefully considered" (p. 158). Conclusions generated from this study were:

1. There was no relationship between the climate descriptor, Openness/Closed, and student achievement in mathematics.

2. There was no relationship between any of the following climate subscores (esprit, consideration, aloofness, hindrance, production emphasis, disengagement, intimacy) and student achievement in mathematics.

3. There was a single climate subscore that has a relationship with student achievement in mathematics. That was a principal behavior, Thrust. Principals did perceive their behaviors as having a relationship to student achievement in mathematics.

4. The most clearly drawn conclusion from this study is that principals and teachers do view things differently (pp. 151-152).
Seibel (1986) investigated the relationships among perceived principal change facilitator style, perceived psychological climate, and student achievement. *Indicators of Change Facilitator Style of Principal* and the *School Climate Survey* were instruments used to survey 2,143 persons in 25 elementary schools, 9 middle schools, 8 high schools, and 1 technical center. Major findings of Seibel's study in relationship to this study were:

1. The elementary and high schools generally yielded similar relationships. When differences among the levels occurred, they were usually found at the middle school level.

2. No significant relationships were found between the ranks of student ability/achievement discrepancy scores and the Responder, Initiator, or Manager styles.

3. No significant relationship was found between the ranks of student ability/achievement discrepancy scores and perceived school climate for the total system. A significant negative relationship with the Initiator style was found at the middle school level (p. xiv-xv).

Montoya (1986) studied school climate perceptions and student achievement in rural and non-rural schools in New
Mexico. Rural respondents included 167 students, nine teachers, and nine principals. Non-rural respondents included a total of 179 students, nine teachers, and eight principals. A modified version of Anderson's My Class Inventory, which was re-titled School Climate Inventory, was used as the survey instrument. The conclusions reached by Montoya were:

1. Students, teachers, and principals perceived climate in their schools (rural and non-rural) as being satisfactory and cohesive. Students in middle school settings perceived their setting to be more positive than students in elementary settings.

2. Of the many correlations tested, only three were significant. The data revealed that rural students' achievement scores in reading and math were positively correlated to perceptions of cohesiveness. Non-rural teachers' perceptions of difficulty were positively correlated to math scores.

3. The data revealed that rural and non-rural students perceived school climate at essentially the same levels, as did teachers and principals in those areas. Since many correlation coefficients were tested and only three were significant, it was concluded no linear relationships existed between
school climate perceptions and achievement.

4. The middle school setting appears to foster higher perceptions of satisfaction, cohesiveness, and difficulty in students than do elementary schools (pp. 63-64).

Cooley (1989) studied the relationship between student achievement and school climate using 18 elementary school teachers and principals in Florida. The Organizational Climate Description Questionnaire (OCDQ) was employed as the survey instrument. This instrument did not demonstrate a significant relationship between school climate and student achievement. Cooley noted "it may be necessary in the future to identify other school climate instruments which are more appropriate in dealing with the schools of the Eighties and the recent research involved in the effective school correlates" (p. 59).

Russell (1987) examined the relationship between principal effectiveness and student achievement, school climate, and a school consensus central focus using the Audit of Principal Effectiveness and Survey of School Climate and Central Focus. The population consisted of 20 students from each of 48 schools in Kansas City and all the fourth, fifth, and sixth grade teachers from each of the schools. The following findings were manifested in the study.
1. The Audit of Principal Effectiveness scores and the climate ratings were high.
2. The Audit of Principal Effectiveness score for the Interactive Processes factor is significantly related to sixth grade reading, math, and composite achievement scores.
3. There was no significant relationship between any of the Audit of Principal Effectiveness scores and achievement gain in student achievement scores.
4. There was a highly significant relationship between school climate and each of the factors, domains, and overall effectiveness scores on the Audit of Principal Effectiveness.
5. There was no significant relationship between school climate and any of the sixth grade achievement or student gain scores.
6. There was no significant relationship between central focus in a building and any of the sixth grade achievement or student gain scores.
7. There was a significant relationship between school climate and consensus central focus in a building.

Edwards (1987) explored the relationship of parent involvement, school climate, and student achievement through comparative case studies. The population consisted of experimental and control groups of students in grades three
through six and parent volunteers at a school in Kansas and at a school in Colorado. Edwards offered two leading recommendations.

1. The conclusions of this study generated recommendations to researchers and practitioners supporting the need for involving parents in the school program in ways which involve parents in the teaching and learning processes of their children.

2. Improved school climate and student gains in academic achievement are the results of a specific effort fostering partnership types of parent involvement in the schools (pp. 206-207).

Brookover and Lezotte (1979) analyzed changes in school characteristics coincident with changes in student achievement. The population for this study was eight elementary schools, six of which were described as improving in student achievement and two of which were declining in student achievement. Information was gathered using personal interviews and a questionnaire that was developed from the Michigan Department of Education Cost Effectiveness Study and the Brookover et al. School Climate Study. Findings regarding principal and teacher attitude include the following conclusions from the study in respect to differences between improving and declining schools.

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1. The improving schools are clearly different from the declining schools in the emphasis their staff places on the accomplishment of the basic reading and mathematics objectives (p. 66).

2. There is a clear contrast in the evaluations that teachers and principals make of the students in the improving and declining schools. The staffs of the improving schools tend to believe that all of their students can master the basic objectives and, furthermore, the teachers perceive that the principal shares this belief (p. 66).

3. The staff of the improving schools hold decidedly higher and apparently increasing levels of expectations with regard to the educational accomplishments of their students (p. 66).

4. In contrast to the declining schools, the teachers and principals of the improving schools are much more likely to assume responsibility for teaching the basic reading and math skills and are much more committed to doing so (p. 66).

5. Since the teachers in the declining schools believe that there is little they can do to influence basic skill learning, it follows that they spend less time in direct reading instruction than do teachers in the improving schools (p. 67).

6. There seems to be a clear difference in the
principal's role in the improving and declining schools. In the improving schools, the principal is more likely to be an instructional leader, more likely to be assertive in his instructional leadership role, is more of a disciplinarian and, perhaps most of all, assumes responsibility for the evaluation of the achievement of basic objectives (p. 67).

7. The improving school staff appears to evidence a greater degree of acceptance of the concept of accountability and are further along in the development of an accountability model (p. 67).

8. Generally, teachers in the improving schools are less satisfied than teachers in the declining schools. The higher levels of reported staff satisfaction and morale in the declining schools seem to reflect a pattern of complacency and satisfaction with the current levels of educational attainment. On the other hand, the improving school staffs appeared more likely to experience some tension and dissatisfaction with the existing situation (pp. 67-68).

9. Differences in the level of parent involvement in the improving and declining schools are not clear cut (p. 68)
Heck, Larsen, and Marcoulides (1990) researched three variables related to principal instructional leadership (school governance, instructional organization, and school climate) and their relationship to student achievement. This study used 332 teachers and 56 schools who responded to the Instructional Activity Questionnaire. Heck et al. noted:

the casual relationships proposed and tested in this research study indicate that through the frequency and effectiveness of implementing instructional leadership behaviors identified, principals can have direct effects on the achievement levels of their schools. Admittedly, the strength of their effects may not be as great as researchers have expected in average schools, but our results do indicate that principals can directly influence their school's student achievement through their leadership practices (pp. 120-121).

van der Sijde (1987-88) studied relationships among classroom climate, student learning outcomes (attitude and achievement), and school climate defined as teacher's job satisfaction. A total of 20 eighth grade teachers and 558 students who all used the same mathematics textbook were involved with this study. This research used the Dutch Classroom Climate Questionnaire and a questionnaire
concerning job satisfaction developed by Prick (1985) to measure school climate. van der Sijde summarized the results by stating that classroom climate is influenced by many variables, by students, by teachers, and by school's management.

"There is generally little argument that the primary focus of schools should involve the acquisition of essential skills" (Spelhaug, 1990, p. 43). The relationship between school climate and student academic achievement, at this point, is inconclusive.

One concern that appears throughout the research is the choice or selection of the instrument used to measure a school's climate. Instruments that concentrate on behaviors, more so than perception, appear to exhibit a closer relationship with student academic achievement.

Hoy et al. (1991) stated:

there is little systematic empirical evidence linking school climate as a scientific construct with academic achievement. Indeed, until school climate is carefully defined and its dimensions mapped and measured, little progress will be made in determining which aspects of climate are directly related to student achievement (p. 2).

"The degree of success or failure of an organization
depends on how well the energies and talents of its people are brought out" (Browder, 1993, p. 38). Literature regarding relationship between school climate and the social context of schooling will now be reviewed.

**Relationship Between School Climate and Social Context of Schooling**

The appropriate school climate in which the academic abilities of students are developed is necessary to improve our education system (Brookover & Erickson, 1969). As American society became more industrialized, educators assumed the role of "gate-keeper" in deciding who would or would not receive more advanced levels of education in the elementary and secondary schools.

Education has served as a vehicle for social mobility and a means to reduce sub-society differences (Brookover & Erickson, 1969). Variations in educational experiences can be identified. Regional or geographical differences point to variations in education. Brookover & Erickson stated:

perhaps the most significant aspect of regional differences is found in those instances where other differences such as the level of income or the racial or ethnic characteristics coincide to some degree with
regional areas. Thus, we identify contemporary Appalachia as a regional area which is also educationally and economically disadvantaged. Likewise, the differences in patterns of de facto segregation between the North and the South make significant differences in the educational organization and processes between these regional areas (p. 47).

Brookover and Erickson (1969) discussed other variations that contribute significantly to the degree of academic success. These variations included:

1. rural-urban variations
2. ethnic variations
3. racial variations
4. socioeconomic status variations
5. subcultural variation vs. cultural deprivation
6. dominant and subordinate group agreement
7. dominant and subordinate group conflict
8. educational disadvantages of poverty

Wren's (1992) study of school climate and satisfaction perceptions used as predictors of student reading achievement also investigated the relationship of student demographics to school climate and academic achievement. Wren concluded that the correlation analysis recognized
predictor variables that were related differently to restricted group membership. Variables were discovered to vary according to the gender, race, and socioeconomic status of the students investigated. The correlation analysis acknowledged a weaker negative relationship between the predictor variables and the criterion variable for the black restricted groups than for the white restricted groups. The data proposed that white students relate strongest to the predictor variables of student behavioral values, student-teacher relationships, and satisfaction with fellow students, and that black students relate strongest to the predictor variable of satisfaction with fellow students.

Table 2 graphically displays the relationships of paired restricted groups and the climate subscale predictor variables that were statistically significant and related the strongest to both groups in Wren's (1992) study.

Wren concluded the results of his research suggested "that with the exception of black females, the subscales of the surveys can be used to predict achievement scores of sixth grade reading students to a degree" (p. 139).
Table 2

**Paired Restricted Groups and Statistically Significant Climate Subscale Predictor Variable (Wren, 1992, pp. 137-138)**

<table>
<thead>
<tr>
<th>PAIRED RESTRICTED GROUPS</th>
<th>SUBSCALE PREDICTOR VARIABLES</th>
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<tbody>
<tr>
<td>White-Black</td>
<td>Satisfaction with fellow students</td>
</tr>
<tr>
<td>Male-Female</td>
<td>Satisfaction with decision making</td>
</tr>
<tr>
<td>High-Low SES</td>
<td>Satisfaction with fellow students</td>
</tr>
<tr>
<td>Black Male-Female</td>
<td>No relation found</td>
</tr>
<tr>
<td>White Male-Female</td>
<td>Teacher-student relations</td>
</tr>
<tr>
<td>Black High-Low SES</td>
<td>Satisfaction with fellow students</td>
</tr>
<tr>
<td>Male High-Low SES</td>
<td>Student behavioral values</td>
</tr>
<tr>
<td>Female High-Low SES</td>
<td>No relation found</td>
</tr>
<tr>
<td>Black Male-Female High SES</td>
<td>No relation found</td>
</tr>
<tr>
<td>White Male-Female High SES</td>
<td>No relation found</td>
</tr>
<tr>
<td>Black Male-Female Low SES</td>
<td>No relation found</td>
</tr>
<tr>
<td>White Male-Female Low SES</td>
<td>No relation found</td>
</tr>
</tbody>
</table>

Forman (1988) investigated the relationships among school climate, selected demographic factors, and sustained gains of student achievement in selected schools receiving federal funding for compensatory educational services in reading. This study consisted of 15 schools in the City of
New York, 464 teachers, and 2,270 students responding to the Organizational Climate Index (OCI) survey instrument. Forman analyzed "the amount of variance that the OCI first order and second order factors and the demographic variables of attendance (contact hours) and years of participation might have contributed to sustained gains" (p. 91-92). Forman concluded that the variable of climate had greater influence over the variable of sustained gain of reading achievement than did the demographic factors. The demographic factors of attendance (contact hours) and years of participation demonstrated much less influence on reading achievement.

Lightfoot (1983) in her study of good schools stated "one of the most striking qualities of these good schools is their consistent, unswerving attitudes towards students" (p. 342). This attitude was evident in the schools' "social pyramid" (p. 84). A social pyramid is typically built upon social class and racial dimensions. Lightfoot noted the mixtures of students in classes and a social pyramid that was built upon ability and disregard for social class.

The reoccurring question "Do schools make a difference?" has provided material for educational researchers. Ballantine (1983) noted "school variations remained fairly constant over time even when controlling for students' family background and personal characteristics" (p. 184).
Heck et al. (1990) concluded from their research that "principals can have direct effects on the achievement levels of their schools. These administrative effects are still present after the effects of students' socioeconomic status and language background are controlled" (pp. 120-121).

School Climate Summary

A school's climate, which includes the overall environment, values, shared beliefs, and personality of a school, clearly affects the inhabitants of the school (Roueche & Baker, 1986). There does not appear to be a ready-made answer that points to any single predictor of high levels of student success. "Schools represent incredibly complex environments" (p. 24). Certain school climate variables emerge as representative of school and student success stories. Taken together, these variables/factors promote a climate that is "hospitable to success, achievement, and growth" (p. 34). These variables/factors include:

1. Research indicates that schools effective in inspiring achievement in their students possess a sense of order, purpose, direction, and coherence (p. 25).
2. The climate within the classrooms conveys a sense of efficiency, a sense that the classrooms have been organized to create more time for instruction and to avoid the waste of time that is typical of ineffective schools (p. 27).

3. Many school climate studies report that school personnel focused on student needs and worked cooperatively to meet these needs (p. 28).

4. A fourth major variable found by researchers is the climate of optimism and high expectations that permeates the classrooms of outstanding schools (p. 29).

5. Another key ingredient of the climate of effective schools is its health as an organization (p. 31).
   A. It has been found that successful schools feel they are being led, not merely managed (p. 31).
   B. Research frequently finds that these principals perceive themselves as instructional leaders and exercise this leadership role more often than principals of less effective schools (p. 32).
   C. The organizational climate of these successful schools is growth-oriented (p. 32).
   D. The professional working climate within an effective school encourages an awareness and an acceptance of the community in which it exists (p. 33).
In 1990, the Tennessee State Board of Education established six goals for its schools, one of which was the requirement that by the year 2000 all students, except the disabled, perform on grade level at the completion of the third grade (West & Valesky, 1993). The Tennessee General Assembly passed the Education Improvement Act (EIA) of 1991. The EIA was a legislative mandate for realizing the goal of measuring the effectiveness of school systems, individual schools, and individual teachers (Greeson, 1993). This instrument for the effectiveness measurement was called Tennessee Value-Added Assessment System (TVAAS) (Tennessee Code Annotated, 1992, 49-1-603).

TVAAS began with the attempt of two statisticians, Sanders and McLean of the University of Tennessee, to explore the feasibility of using statistical mixed model methodology to eradicate previously determined impediments to use student achievement data in an outcome-based assessment system (Sanders & Horn, in press). These impediments included, but were not limited to, the following:

1. missing student records;
2. various modes of teaching (i.e. self-contained classroom vs. departmentalized instruction vs. team
teaching);
3. teachers changing assignments over years;
4. transient students;
5. regression to the mean;
6. different variance-covariance structures across school systems; and
7. the need to include concomitant covariables as needed (p. 2).

McLean and Sanders (1984) Knox County, Tennessee study used three years of gains scores of student achievement data based on the California Achievement Test for grades 2 through 5 for teacher assessment. This assessment was based upon a statistical system of analysis employing Henderson's (1973) mixed-model methodology. The Knox County study (Sanders & Horn, in press) generated the following conclusions:

1. There were measurable differences among schools and teachers with regard to their effect on indicators of student learning.
2. The estimates of school and teacher effects tended to be consistent from year to year.
3. Teacher effects were not site specific, i.e., a gain score could not be predicted by simply knowing the location of the school.
4. There was very strong correlation between teacher effects as determined by the data and subjective evaluations by supervisors.

5. Student gains were not related to the ability or achievement levels of the students when they entered the classroom (pp. 2-3).

The Knox County study was replicated in the Chattanooga City Schools and the initial findings were confirmed (Sanders & Horn, in press). This study included numerous inner-city schools. Another aspect of the system that was brought to light was "the estimate of school effects was not related to the racial composition of the student body" (p. 3).

The EIA focused on the accountability of teachers, schools, and school systems in meeting the goals and objectives established for Tennessee's students. The focus was on "the product of the educational experience rather than the process by which it was to be achieved (Sanders & Horn, in press, p. 4).

Sanders and Horn (in press) describe the TVAAS currently being used as:

a statistical process which provides measures of the influence that school systems, schools, and teachers have on indicators of student learning. Initially,
TVAAS will furnish this information on the system level for each school system in Tennessee for grades three through eight in math, science, reading, language, and social studies by using the scale scores from the Tennessee Comprehensive Assessment Program (TCAP).

TVAAS analyzes the scale scores students make on the norm-referenced items of the TCAP. The pattern of the scale scores over the child's school career forms a profile of academic growth. A data base containing the merged records of all students in Tennessee who have taken the TCAP tests during the past three years has been constructed. At present, it contains more than 1.6 million student records. This number will continue to grow over time and will enable continued tracking of the academic growth of each student (p. 6).

The fourth year of TCAP tests has been completed for all students in Tennessee in grades 2-8, as of April 1993 (Sanders, 1993). School system and individual school profiles will be published annually from these data and from data derived in succeeding years. "These profiles will provide information as to how students in individual schools are 'growing' academically over years" (p. 1).

Sanders (1993) continued his summary of TVAAS with the statement that:
by measuring the growth pattern of individual students and by associating the "dents" and "bubbles" in these patterns with school systems, schools and individual teachers, then the effects that systems, schools and teachers have on the rate of student learning can be assessed. Research conducted at The University of Tennessee, based upon statistical mixed model theory and methodology, indicates that this approach to assessment provides measures of the influence that school systems, schools and teachers have on the rate of student learning free of most of the socio-economic confoundings which have deterred educational outcome assessment from student achievement data in the past. With appropriate measurement in place, realistic expectations and goals have been defined. One goal is for each school system and each school within a system to have average gains in all academic subjects equal to or greater than the gains to keep pace with the gains determined from the national norm curves. Presently, many schools in Tennessee meet this standard; but others do not. (Preliminary studies indicate that considerable variation from school to school within a system does exist.) For those schools which do not, the amount of expected yearly progress toward this goal is to be determined by the Commissioner of Education (pp. 1-2).
VAAS has placed Tennessee in the forefront in regard to educational accountability. Former Education Commissioner Charles Smith stated, "Tennesseans can be proud of the fact that our state is now recognized as a national leader in the area of educational accountability" ("Value-added," 1993, p. 1).

Value-Added Assessment Summary

West and Valesky (1993) concluded "Tennessee's Value-Added Assessment Model could have profound implications for principals and teachers" (p. 12). The potential impact of TVAAS is as of yet unknown. A collaborative (West & Valesky, 1993), collegial (Sergiovanni, 1993) process is needed to establish a school climate conducive to improvement in the evaluation and measurement of effective teaching.

Sanders and Horn (in press) summarized that "TVAAS offers insight and perspective in the pursuit of educational improvement. It provides a solid basis from which change can be rationally undertaken. The academic gains our students make is the measure of our success as well as theirs" (p. 21).
Summary of Relevant Findings

School climate is an issue of concern for researchers, although consensus has not been reached regarding an exact definition of school climate. Effective schools and a positive school climate appear to share a common bond.

Leader behaviors and organizational processes must be perceived by their followers as being supportive of their efforts and enhancing their own sense of worth (Bass, 1990). In regard to Likert's System 4 Organization, Bass (1990) noted "positive associations generally have been found between measures of the organizations' performance and whether they are closer to democratic systems 3 and 4 than to autocratic systems 1 and 2" (p. 430).

"The principal's perceptions of the health or climate of the school is frequently at variance with the perceptions of teachers" (Hoy & Tarter, 1992, p. 78). POS is a climate instrument that taps the school's managerial system (social system and culture indicators), measuring relationships between the principal and teachers. Participative schools have been rated more effective and have higher teacher and student satisfaction" (Kottkamp, 1988, p. 220). Climate perceptions are critical when attempting to understand the total environment of the school.

"There is generally little argument that the primary focus of schools should involve the acquisition of essential
skills" (Spelhaug, 1990, p. 43). The relationship between school climate and student academic achievement, at this point, is inconclusive. One question that runs like a bright colored thread throughout the research is the choice or selection of the instrument utilized to measure a school's climate. Instruments that concentrate on behaviors, more so than perception, appear to exhibit a closer relationship with student academic achievement.

The appropriate school climate that develops and promotes student academic achievement is meaningful in our educational systems. Educators have assumed the role of "gate-keeper" in deciding who would or would not receive more advanced levels of education (Brookover & Erickson, 1969). Recent studies (Wren, 1992; Forman, 1988; Ballantine, 1983) concluded school climate contributed more to the variance in student academic achievement than school contextual effects.

Value-added assessment analysis calculates the gain of students during a specific period of time. Therefore, the students are being evaluated according to their progress, and the variable is the teacher, school, or school district (Greeson, 1993). The potential impact of TVAAS is as of yet unknown (West & Valesky, 1993). A collaborative (West & Valesky), collegial (Sergiovanni, 1993) process is needed to establish a school climate conducive to improvement in the evaluation and measurement of effective teaching. "The
academic gains our students make is the measure of our success as well as theirs" (Sanders & Horn, in press, p. 21).
CHAPTER 3

Methods and Procedures

Chapter 3 contains a description of the population, research design, instrumentation, procedures followed in collecting the data, and data analyses. The following information discusses those topics.

Population

The population consisted of 152, K - 8 schools in the First Tennessee District. Of the 152 schools, only those schools which served a third grade population were selected. The First Tennessee District is situated in the northeastern corner of Tennessee. The entire area is located in the cultural region known as Appalachia. Student enrollment in these K - 8 schools during the 1993-94 academic school year ranged from 49 to 1,420. The number of teachers employed in the K - 8 schools during the 1993-94 academic school year varied from 4 to 85 per school. The summary, findings, conclusions, and recommendations are generalized to K - 8 schools in the First Tennessee District.

A list of all schools within the 17 school systems included in the First Tennessee District for the academic school years 1990-91 and 1993-94 (Directory of Public
Schools, 1990–91; 1993–94) was obtained from the First Tennessee District Office. Schools selected for study included those that employed the same principal for the 1990–91, 1991–92, 1992–93 academic school years and those that served a third grade population. Researchers have concluded that if a school has employed the same principal for three or more years, fifty-percent of all that occurs or does not occur within that particular school can be attributed to the principal (Heck et al., 1990; Russell, 1987; Kelley, 1980; Donlan, 1979). Of the 152, K–8 schools within the district, 83 schools met this requirement. Of the 83 schools, 19 of the principals were female, and 64 of the principals were male. These 83 schools employed a total of 1,739 teachers. A random sample was taken from the 83 schools which resulted in the selection of 68 schools, representing a confidence level of 95%.

**Research Design**

The study presented herein is survey research. Borg (1987) stated "survey research typically employs questionnaires and interviews in order to determine the opinions, attitudes, preferences, and perceptions of persons of interest to the researcher" (p. 155). The survey will provide feedback regarding the strength of the relationships
among school climate, academic achievement, and school contextual effects. May and Kruger (1988) asserted that feedback, combined with personal reflection, is useful for expanded self-awareness and for strengthening relationships with colleagues.

**Measurement of Variables (Instrumentation)**

Data used to measure the perceptions of principals and teachers were collected through the survey instrument *Profile of a School* (POS) (Likert, 1986). The instrument questions are included in Appendix A. "Looking at schools" (1987) described the POS as:

a set of questionnaires designed to assess administrator performance and school climate, with the aim of providing information for organizational improvement. The POS is appropriate for both individual schools and entire school districts. The questionnaires grew out of research conducted in a wide variety of organizational settings over the past 30 years by the Institute for Social Research of The University of Michigan. The work is based on the premise that a particularly promising way to help improve schools is to help administrators use a more effective management system (p. IV-10).
The POS produces a comparative group of measures across all job classifications. Teachers' and principals' responses to the multiple questionnaire items are combined to form indices. The indices are included in Appendix B.

The first two groups of indices impact indirectly or directly on end result variables. These indices include student achievement, teacher morale, organizational climate, work facilitation, and technical competence. Intervening indices reflect the internal state of the organization. Openness of communication, direction of information flow, accuracy of upward information, nature of peer interactions, amount of influence, and self-motivation are included in this group. Indices consisting of end result variables that measure employee satisfaction is the third category.

Each questionnaire item is answered on a five- or eight-point scale. Questions are phrased in such a manner that a low score represents System 1 and a high score, System 4. Approximately 30 to 45 minutes were required to complete the surveys. Answers were marked on the questionnaire. To facilitate optimal administration conditions, detailed instructions were provided within individual questionnaires. Scoring was provided as part of the Rensis Likert Associates (RLA) instrumentation support service.

The components of the POS include the following 17 primary components and the four major areas (Likert, 1986):
CLIMATE
1. Decision Making
2. Communication
3. Goal Commitment
4. Coordination
5. Influence

LEADERSHIP
6. Support
7. Team Building
8. Work Facilitation
9. Goal Emphasis
10. Encouragement of Participation
11. Job Performance

INTERVENING
12. Trust in Administrator
13. Openness with Administrator
14. Peer Relationships
15. Conflict Resolution

END RESULTS
16. Educational Excellence
17. Job Satisfaction

The split-half method was used to report the reliability (Rosenfield, 1985). Reliabilities for the indices that were based on 2 to 4 items are .58-.88. These indices have increased in length over the earlier editions.
This should result in higher reliabilities.

The split-half reliability for the POS has consistently been found to be .95 or higher. It was noted (Likert, 1986) that the reliability of the POS varied from group to group according to the variance that exists within the group itself. The more heterogeneous the group, the higher the reliability (Likert, 1986).

Numerous variables, such as socio-economic status and family background, impact student academic achievement and make analysis difficult. The evidence of the effectiveness of a particular administrator's style is much less clear than it is in business. A number of studies, especially recently completed doctoral dissertations, are providing evidence that System 4 is valid in educational organizations (Likert, 1986).

The total picture of the validity of the POS is limited (Rosenfield, 1985). One of the limitations of the POS is few studies used the entire range of questionnaires. Some of the studies used modifications of the POS. Rosenfield summarized that:

> while relatively limited data are available in terms of standard methods of assessing the reliability and validity of the measure, this survey instrument has been found useful in a variety of studies in measuring a school or school system's progress towards a
participative management system, and relating that to several interesting and relevant outcome measures. The POS seems capable of providing intensive and informative data about the management system and climate of a school or school system (p. 1217).

Tennessee Value-Added Assessment System

The Tennessee Value-Added Assessment System (TVAAS) measures the impact that a teacher, school, and school system has on a student. TVAAS is based upon Henderson's mixed model methodology. This model analyzes data to measure teacher, school, and school system influences on students even under unfavorable student and school contextual circumstances.

Student scale scores from the norm-referenced Tennessee Comprehensive Assessment Program (TCAP) are analyzed over a period of at least three and no more than five years to indicate current level of achievement. TCAP items that are above and below grade level are included to indicate a clearer picture of student academic gain.

Data used to measure value-added assessment and school contextual effects under consideration were obtained through the Tennessee State Department of Education. These data produced statistics that described the reading and mathematics academic achievement of students enrolled in the
third grade in schools in the First Tennessee District.

**School Contextual Effects**

The size of the school in terms of total number of students, the socio-economic context of the school as determined by the percentage of students classified as eligible for free or reduced meals, degree of minority enrollment of students in terms of percentages of black, white, or other students, and the location of the school in terms of urban, suburban, or rural was self-reported by the schools. Each school was requested to complete a short, standardized form to supply this information. The form is included in Appendix C.

**Data Collection Procedures**

Each of the 17 superintendents in the First Tennessee District was sent a letter explaining the purpose of this study, the schools selected for participation, and a copy of the survey instrument. A return, self-addressed envelope was included for the superintendents to indicate their preference of participating or not participating in the study. A follow-up telephone call was made to each superintendent to personally clarify the study and encourage participation in the study.
After securing permission from the superintendents, the researcher mailed the surveys, school contextual effects form, and a cover letter to each principal of the participating schools. The purpose of the cover letter was four-fold:

1. explanation of the purpose of this study
2. information regarding data collection
3. distribute survey materials for each of the schools participating in this research
4. discuss procedures for dissemination of survey results

Each principal was requested to place a survey in the teachers' mailbox for them to complete at their own discretion. Each survey instrument was placed in an individual packet with instructions to complete the survey, return the survey to the packet, seal the packet, and return the packet to the survey administrator (principal). This procedure was implemented to safeguard respondent confidentiality. The principal then mailed the completed surveys to the researcher in the postage-paid envelope which was provided.

Tennessee Value-Added Assessment System gain scores for the third grade were obtained from the Tennessee Department of Education. School contextual effects were provided by
the individual schools on a standardized form.

**Data Analyses**

A t-test was used to determine if there was a statistically significant difference between the principals and teacher perceptions of school climate as measured by the POS in the 17 primary areas, the 4 major areas, and the overall POS score. A p score of less than .05 was used to determine if a statistic was significant or not. Hinkle, Wiersma, and Jurs (1988) stated, "that when the variance of the sample is used as an estimate of the variance in the population, the test statistic is defined as t" (p. 201).

A Pearson Product Moment Correlation was used to test the strength of the relationship between the school climate scores and the TVAAS scores and between certain school contextual effects (size of school, socio-economic context of the school, and degree of minority enrollment) and TVAAS scores. The correlation will be calculated on school-level data. The .05 level of significance will be used to reject or fail to reject the null hypothesis. Hinkle, Wiersma, and Jurs (1988) stated, "the Pearson product-moment correlation coefficient is the average cross-product of the standard scores of two variables" (p. 109).
An analysis of variance (ANOVA) was used to test the strength of the relationship between the school contextual effect "location of the school" and TVAAS scores. The correlation was calculated on school-level data. Hinkle, Wiersma, and Jurs (1988) define the one-way ANOVA as "the analysis of one independent variable with two or more levels" (p. 329).

A multiple regression analysis was used with the school climate scores and school contextual effects as the independent variable. The TVAAS scores will serve as the dependent variable. Norusis (1990) described multiple regression analysis as the statistic used when "one wishes to draw inferences about the relationship of the variables in the population from which the sample was taken" (p. B-72). Norusis added, "multiple linear regression extends bivariate regression by incorporating multiple independent variables" (p. B-91).
CHAPTER 4

Presentation and Analysis of Data

Introduction

Results and findings obtained from the data assembled in the research project are presented in this Chapter. Research questions posed are addressed and analyzed. Research questions that guided this study were:

(1) Is there a significant difference between principal and teacher perceptions of school climate?

(2) What is the relationship between value-added assessments in the third grade in total reading and total mathematics scores and components of school climate?

(3) What is the relationship between value-added assessment in the third grade in total reading and total mathematics scores and school contextual effects?

(4) How well can the combination of school climate factors and school context effects predict value-added assessment in third grade reading and mathematics?

The analysis of data in Chapter 4 begins with a presentation of demographic data for all survey respondents. Following the demographic investigation, the statistical analysis of each hypothesis ($H_1 - H_4$) is presented.
Demographic Characteristics

During the Spring of 1994, 16 of the 17, or 94%, of the school systems in the First Tennessee District participated in this research project. Of the schools requested to participate in this research project, 55 of the 68, or 81%, responded to the surveys. The location of the participating schools was as follows: 11 were urban; 17 were suburban; and 27 were rural.

Within the individual schools, 798 of the 1248, or 64%, of the total number of principals and teachers completed the surveys. The total number of principal respondents was 51. Thirty-four of the principals were male, 12 were female, and 5 did not respond to that item. Ages of the principals were as follows: 3 were 26 years - 35 years; 14 were 36 years - 45 years; 27 were 46 years - 55 years; and 7 were 56 years or over. The principals responded to how long they had worked within the system with the following: 1 had worked 1 - 5 years; 4 had worked 6 - 10 years; 16 had worked 11 - 20 years; and 30 had worked 21 years or more within the system. The average principal respondent for this survey was a 46 to 55 year old male who had worked within the same system for 21 or more years.

The total number of teacher respondents was 747. Of this number 62 were male, 605 were female, and 80 did not respond to the item. Teachers reported their ages as
follows: 45 were 25 years old or less; 167 were 26 years -
35 years; 282 were 36 years - 45 years; 182 were 46 years -
55 years; 47 were 56 years or over; and 24 not responding to
the item. The response to how long the teachers had worked
within the system was as follows: 43 had worked less than 1
year; 144 had worked 1 - 5 years; 125 had worked 6 - 10
years; 239 had worked 11 - 20 years; 177 had worked 21 years
or more; and 19 did not respond to the item. The average
teacher respondent for this survey was a 36 - 45 year old
female who had worked 11 - 20 years within the system.

Reporting Analysis of the Hypotheses

The t-test for independent samples was used to test the
null hypothesis for Hypothesis 1. Pearson Product Moment
Correlation, analysis of variance with omega squared, and
multiple regression analysis were used to test the null
Hypotheses 2 through 4.

Hypotheses 1 through 4 dealt with principal and teacher
perceptions of school climate related to value-added
assessment and selected school contextual effects in the
First Tennessee District. Four major areas of school
climate (climate, leadership, intervening, and end results)
were measured by requesting the respondent to mark their
reaction to each question on an extent scale. The extent
scale was comprised of 1 representing "to a very little extent," 2 equivalent to "to a little extent," 3 commensurate with "to some extent," 4 parallel with "to a great extent," and 5 equaling "to a very great extent."

Hypothesis 1

There is no statistically significant difference between 51 principal and 747 teacher perceptions of the climate of a school as measured by the Profile of a School (POS). Climate scores were assessed in:

a. overall POS score, if significant (a=0.05)
b. 4 major areas, if significant (a=0.0125)
c. 17 area components

The overall POS scores of the principal and teacher respondents were examined to determine if a significant difference existed between the perceptions of the principals and the teachers. The overall POS mean score of the principals was 3.96. The overall POS mean score of the teachers was 3.69. This resulted in \( t = 2.82 \) (df = 790) and a p of .005 which indicated a significant difference with p < .05. Therefore, a significant difference was detected between overall POS principal and teacher respondent perceptions. The null hypothesis concerning
overall POS scores was therefore rejected.

The four major areas of the POS were analyzed to determine if a significant difference existed between principal and teacher perceptions of school climate. Table 3 illustrates the results of the analysis of the four major areas. A significant difference was determined to exist in two of the four areas: Climate and Leadership. Intervening and End Results, however, did not reveal a significant difference. The null hypotheses concerning climate and leadership subscores were rejected; however, for Intervening and End Results the null was not rejected.

Table 3

Summary of 4 Major Areas of POS for Principal and Teacher Perceptions

<table>
<thead>
<tr>
<th>Area</th>
<th>Principal Mean</th>
<th>Teacher Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>3.78</td>
<td>3.35</td>
<td>4.23</td>
<td>789</td>
<td>.000*</td>
</tr>
<tr>
<td>Leadership</td>
<td>4.02</td>
<td>3.66</td>
<td>2.61</td>
<td>789</td>
<td>.009*</td>
</tr>
<tr>
<td>Intervening</td>
<td>3.98</td>
<td>3.80</td>
<td>1.71</td>
<td>790</td>
<td>.087</td>
</tr>
<tr>
<td>End Results</td>
<td>4.05</td>
<td>3.97</td>
<td>0.84</td>
<td>783</td>
<td>.402</td>
</tr>
</tbody>
</table>

* Significant with p < .05
Only the 11 area components which were part of the Climate and Leadership subscales were examined since no significant differences were found for Intervening and End Results subscales. The area components yielded mixed results. Four of the areas (Goal Commitment, Support, Goal Emphasis, and Job Performance) did not demonstrate significant differences between principal and teacher perceptions of school climate; however, in seven areas there were significant differences (Decision Making, Communication, Coordination, Influence, Team Building, Work Facilitation, and Encouragement of Participation). Table 4 depicts the results of the area components of the survey. The hypothesis that teachers and principals would differ on the area components was rejected for seven area components and retained for four.
Table 4

Summary of Area Components of POS for Principal and Teacher Perceptions

<table>
<thead>
<tr>
<th>Area</th>
<th>Principal Mean</th>
<th>Teacher Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision Making</td>
<td>3.84</td>
<td>3.22</td>
<td>4.88</td>
<td>791</td>
<td>.000*</td>
</tr>
<tr>
<td>Communication</td>
<td>3.68</td>
<td>3.16</td>
<td>3.77</td>
<td>781</td>
<td>.000*</td>
</tr>
<tr>
<td>Goal Commitment</td>
<td>3.80</td>
<td>3.63</td>
<td>1.25</td>
<td>783</td>
<td>.213</td>
</tr>
<tr>
<td>Coordination</td>
<td>3.92</td>
<td>3.33</td>
<td>4.16</td>
<td>787</td>
<td>.000*</td>
</tr>
<tr>
<td>Influence</td>
<td>3.71</td>
<td>3.40</td>
<td>3.21</td>
<td>791</td>
<td>.001*</td>
</tr>
<tr>
<td>Support</td>
<td>4.16</td>
<td>3.89</td>
<td>1.84</td>
<td>795</td>
<td>.066</td>
</tr>
<tr>
<td>Team Building</td>
<td>4.09</td>
<td>3.70</td>
<td>2.52</td>
<td>790</td>
<td>.012*</td>
</tr>
<tr>
<td>Work Facilitation</td>
<td>4.07</td>
<td>3.65</td>
<td>2.75</td>
<td>794</td>
<td>.016*</td>
</tr>
<tr>
<td>Goal Emphasis</td>
<td>3.97</td>
<td>3.74</td>
<td>1.61</td>
<td>790</td>
<td>.107</td>
</tr>
<tr>
<td>Encouragement of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation</td>
<td>3.69</td>
<td>3.20</td>
<td>3.23</td>
<td>790</td>
<td>.001*</td>
</tr>
<tr>
<td>Job Performance</td>
<td>4.07</td>
<td>3.80</td>
<td>1.80</td>
<td>784</td>
<td>.073</td>
</tr>
</tbody>
</table>

* Significant with p < .05

Hypothesis 2

There is no statistically significant relationship between value-added assessments in the third grade in either...
total reading or total mathematics scores and the climate of a school as measured by the POS. Climate scores will be assessed in:

a. overall POS score, if significant ($\alpha=0.05$)
b. 4 major areas, if significant ($\alpha=0.0125$)
c. area components

Table 5 depicts the results of the correlation for this hypothesis. No significant relationship was determined to exist between value-added assessment scores for either total reading or total mathematics in the third grade and the overall POS score. The hypothesis concerning overall POS score was retained.

Table 5  
Summary of Correlation of Third Grade Total Reading and Total Math Value-Added Assessment Scores and the Overall POS Score

<table>
<thead>
<tr>
<th>Area</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Reading &amp; POS</td>
<td>-.082</td>
<td>.551</td>
</tr>
<tr>
<td>Total Math &amp; POS</td>
<td>-.167</td>
<td>.223</td>
</tr>
</tbody>
</table>
Tables 6 and Table 7 depict the results of the correlation for the part of the hypothesis examining the relationship between math and reading and the four major area scores. No significant relationship was determined to exist between value-added assessment scores for either total reading or total mathematics in the third grade and the 4 major areas of the POS score. This part of the hypothesis (concerning the four major areas) was retained.

Table 6  

Summary of Correlation of Third Grade Total Reading Value-Added Assessment Scores and the 4 Major Areas of the POS

<table>
<thead>
<tr>
<th>Area</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading &amp; Climate</td>
<td>-.086</td>
<td>.534</td>
</tr>
<tr>
<td>Reading &amp; Leadership</td>
<td>-.093</td>
<td>.500</td>
</tr>
<tr>
<td>Reading &amp; Intervening</td>
<td>-.039</td>
<td>.779</td>
</tr>
<tr>
<td>Reading &amp; End Results</td>
<td>-.117</td>
<td>.394</td>
</tr>
</tbody>
</table>
Table 7

Summary of Correlation of Third Grade Total Math Value-Added Assessment Scores and the 4 Major Areas of the POS

<table>
<thead>
<tr>
<th>Area</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>-.098</td>
<td>.478</td>
</tr>
<tr>
<td>Leadership</td>
<td>-.141</td>
<td>.304</td>
</tr>
<tr>
<td>Intervening</td>
<td>-.199</td>
<td>.144</td>
</tr>
<tr>
<td>End Results</td>
<td>-.149</td>
<td>.279</td>
</tr>
</tbody>
</table>

Hypothesis 3

There is no statistically significant relationship between value-added assessment in the third grade in total reading and total mathematics scores and the following school contextual effects:

a. size of school (correlation used)
b. socio-economic context of the school (percent free and/or reduced lunch) (correlation used)
c. degree of minority enrollment (percent enrollment) (correlation used)
d. location of school (urban, suburban, rural) (analysis of variance used)

Table 8 depicts the results of correlations for size
and reading and math for this hypothesis. No significant relationship was determined to exist between value-added assessment scores for total reading or total mathematics in the third grade and the size of the school as determined by the total number of students enrolled. The null hypothesis was retained.

Table 8
Summary of Correlation of Third Grade Total Reading and Total Math Value-Added Assessment Scores and the Size of the School

<table>
<thead>
<tr>
<th>Area</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading &amp; Size</td>
<td>-.0219</td>
<td>.876</td>
</tr>
<tr>
<td>Math &amp; Size</td>
<td>.054</td>
<td>.701</td>
</tr>
</tbody>
</table>

Table 9 depicts the results of correlations for the hypothesis pertaining to percent on free/reduced lunch and reading and math scores. No significant relationship was determined to exist between value-added assessment scores for total reading or total mathematics in the third grade and the socio-economic context of the school as defined by the percentage of students receiving free and/or reduced lunch. The null hypothesis was retained.
Table 9  
**Summary of Correlation of Third Grade Total Reading and Total Math Value-Added Assessment Scores and the Socio-economic Context of the School**

<table>
<thead>
<tr>
<th>Area Correlation Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading &amp; % Free/Reduced Lunch .157 .276</td>
</tr>
<tr>
<td>Math &amp; % Free/Reduced Lunch -.037 .801</td>
</tr>
</tbody>
</table>

Table 10 depicts the results of correlations pertaining to the percent minority enrollment and reading and math scores. No significant relationship was determined to exist between value-added assessment scores for total reading and total mathematics in the third grade and the degree of minority enrollment as defined by the number of nonwhite students enrolled. The null hypothesis was retained.

Table 10  
**Summary of Correlation of Third Grade Total Reading and Total Math Value-Added Assessment Scores and the Degree of Minority Enrollment**

<table>
<thead>
<tr>
<th>Area Correlation Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading .012 .932</td>
</tr>
<tr>
<td>Math -.094 .509</td>
</tr>
</tbody>
</table>
Table 11 depicts the results of the ANOVA correlations pertaining to location and this hypothesis. No significant differences were determined to exist between the mean value-added assessment scores for total reading or total mathematics in the third grade based on the location of the school (urban, suburban, or rural).
### Summary of Strength of Relationship of Third Grade Total Reading and Total Math Value-Added Assessment Scores and the Location of the School

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>439.57</td>
<td>2</td>
<td>219.78</td>
<td>1.3006</td>
<td>.2811</td>
</tr>
<tr>
<td>Within</td>
<td>8787.00</td>
<td>52</td>
<td>168.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9226.60</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mean Reading Scores**
- Urban: 18.83
- Suburban: 25.58
- Rural: 26.06

\[ \omega^2 = \frac{SS_{treat} - (K - 1)MS_{error}}{SS_{total} + MS_{error}} = .0108 \]

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>864.93</td>
<td>2</td>
<td>432.46</td>
<td>1.097</td>
<td>.3416</td>
</tr>
<tr>
<td>Within</td>
<td>20508.00</td>
<td>52</td>
<td>394.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21373.00</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mean Math Scores**
- Urban: 37.60
- Suburban: 47.62
- Rural: 39.93

\[ \omega^2 = \frac{SS_{treat} - (K - 1)MS_{error}}{SS_{total} + MS_{error}} = .0035 \]
Omega squared is a measure of strength of relationship. It is "the degree of association between the dependent and independent variables" (Howell, 1992, p. 322). This calculation is based on a fixed model.

**Hypothesis 4**

There is no statistically significant relationship among value-added assessment in the third grade in total reading or total mathematics scores and the following school climate and school contextual effects:

a. school climate components
   1. 17 primary areas
   2. 4 major areas
   3. overall POS score

b. school contextual effects
   1. size of school
   2. socio-economic context of the school (free and/or reduced lunch)
   3. degree of minority enrollment
   4. location of school (urban, suburban, rural)

Using a multiple regression method and regressing reading on the 17 Primary Areas and the school contextual effects, the Multiple $R^2$ was .466 ($F=1.16$, $p=.348$). The
regression of mathematics on the previous components was a
Multiple R² of .405 (F=.907, p=.586). This hypothesis was
retained.

The regression for reading and the 4 Major Areas of the
POS and the school contextual effects resulted in a Multiple
R² of .087 (F=.487, p=.858). The regression for mathematics
on the school contextual effects resulted in a Multiple R²
of .109 (F=.623, p=.751). The null hypothesis was retained.

The regression for the total reading scores on the
overall POS score and the school contextual effects resulted
in a Multiple R² of .060 (F=.561, p=.729). The null
hypothesis was retained. The regression for the mathematics
scores on the overall POS score and the school contextual
effects resulted in a Multiple R² of .052 (F=.485, p=.786).
The null hypothesis was retained.

This chapter contained the statistical treatment of the
data. Recommendations and conclusions are presented in
Chapter 5.
CHAPTER 5

Summary, Conclusions, and Recommendations

Summary

This study focused on principal and teacher perceptions of school climate related to value-added assessment and selected school contextual effects in the First Tennessee District. Basically, the problem was to assist in developing a clearer understanding of organizational climates in K - 8 schools in Tennessee and the relationship that climate has to school performance, as measured through value-added assessment.

In a review of literature conducted for this research, it was determined that a school's climate which included the overall environment, values, shared beliefs, and personality of a school clearly affects inhabitants of the school (Roueche & Baker, 1986). Any certain factor does not point to a single predictor of high levels of student success. "Schools represent incredibly complex environments" (p. 24).

TVAAS was developed using statistical mixed model methodology to assess student achievement. This process measures the influence the systems, schools, and teachers exert over student academic achievement. The influence was to be independent of factors such as differences in various modes of teaching, change of teacher assignments, and
transient students.

Data were gathered regarding the school climate using the POS. In the First Tennessee District, 55 schools, representing 16 districts, responded to the surveys. School contextual effects were self-reported by the individual schools. Value-added assessment scores were obtained from the Tennessee State Department of Education.

Analyses of the data included t-test, Pearson Product Moment Correlation, analysis of variance (ANOVA) with omega squared, and multiple regression analysis. Each analysis noted the level of significance and whether or not that particular consideration was significant.

Conclusions

Conclusions that were derived from results of this study are:

1. As far as the methodology used in this study several strengths were believed to exist. The primary one concerns the high participation rate. This was possibly due to the fact that each superintendent was asked to endorse the study and all agreed to do so. Respondents also must have been comfortable that confidentiality would be guaranteed. There was considerable interest among participants in the topic
since the value-added assessment program is relatively new and untested. Numerous follow-up contacts were used between the researcher and the respondents. The data analysis was performed by Rensis Likert Associated, Inc., a leading research consulting group. Accuracy of the data analysis is seen as a strength in this study.

2. Data from the POS indicated significant differences in principal and teacher perceptions regarding the areas of Decision Making, Communication, Coordination, Influence, Team Building, Work Facilitation, and Encouragement of Participation. On all areas, in fact, the principals scored higher than the teachers. Principals consistently rated their schools higher than did the teachers. These ratings were statistically significant only on Climate and Leadership. Teachers and principals were similar on Intervening and End Results because they shared the same views concerning the internal health (Intervening) of the organization and the satisfaction with the performance of the school (End Results). Principals, however, rated the leadership and climate of the school higher than the teachers. Because these ratings were a possible reflection on the job they were doing, this was to be expected. Based on the analysis of this data, these areas are in need of a clearer understanding by
3. Data from the survey indicated the POS was not related to student achievement in reading and math (as measured by the value-added assessment scores). This is contrary to previous findings using the POS (Donlan, 1979; Likert, 1977). Several reasons are possible for this contrary finding. The first may be the value-added testing is not similar to the measures of achievement used in past studies. The methodology used in value-added assessment may also be responsible for this difference in findings. Another possibility is that the schools used in this study are more homogeneous than those used previously.

4. The school contextual effects (size, socio-economic context, minority percentage, and location) were not found to be related to the value-added assessment scores in reading or math. Again, this is contrary to previous research (Wren, 1992; Forman, 1988; Brookover & Erickson, 1969). The difference may be attributable to the use of value-added scores rather than the traditional measures of achievement. This is in fact one reason for using value-added scores - to control for differences based on intervening variables such as socio-economic status.

5. The multiple regressions were not significant, indicating no relationships between any of the
variables and the value-added scores in math or reading. This was contrary to previous research also (Wren, 1992; Forman, 1988; Donlan, 1979; Likert, 1977; Brookover & Erickson, 1969). Again, this difference may be attributable to the measure of achievement used and to homogeneity of the schools in the sample.

Recommendations

Based on the findings of this study, the following recommendations are offered:

1. The value-added assessment concept is of great interest to not only teachers, but also principals and superintendents. Because there is a great degree of interest, it is recommended that the present study be replicated at a later date to confirm the results of this research.

2. If the purpose of the value-added assessment program is to even out differences between schools (such as socio-economic status) when comparing achievement, then these findings suggest that value-added assessment has been successful. In other words, variables such as socio-economic context, minority enrollment, size, and location are not effecting value-added assessment scores. In that case, value-added assessment may be a
better measure of school performance than traditional achievement scores. If so, it would make sense to use value-added assessment when comparing schools.

3. Further research should be conducted using another measurement of student achievement with the current POS scores to determine if the instrumentation measuring student achievement yields significantly different results. Possibly other measures have not controlled for differences based on socio-economic status, school size, etc.

4. This study was limited to teachers and principals. A more comprehensive study of the schools' climate should be conducted involving the superintendent, school board members, parents, students, and community members to obtain a more extensive view of the schools' climate.

5. Further research should be conducted to gain a more complete understanding of the significant differences between principal and teacher perceptions of school climate.
REFERENCES
References


Appendix A

Profile of a School Survey Instrument
January 19, 1994

DiAnn Casteel
2545 Flatwoods Road
Greencastle, TN 37743

Dear Ms. DiAnn Casteel:

Rensis Likert Associates, Inc., is pleased to grant you permission to use the Profile of a School Staff Questionnaire (POS) to collect data for your dissertation research. I am enclosing a copy of the POS that you may use for duplication purposes. We understand that you will be surveying approximately 1400 teachers.

You may include a copy of the POS and the "Index Component" listing in your proposal as well as in your final bound and/or microfilmed report. We understand that copies of your report, including the POS, may be distributed upon request.

Good luck. Please contact me if you have any questions.

Sincerely,

Raymond C. Seghers
Senior Associate
PROFILE OF A SCHOOL
Staff Questionnaire

We appreciate your answering the questions in this booklet. The questionnaire is designed to collect information about how people in your organization work together. The purpose is to provide information to help make your work situation more satisfying and productive. Therefore, it is important that you answer each question as thoughtfully and frankly as possible.

This is not a test and there are no right or wrong answers. Your individual responses will not be identified. The completed questionnaires are processed by automated equipment. Responses are summarized in statistical form by group. To ensure complete confidentiality, please do not write your name anywhere on the questionnaire.

There are several questions that request basic employee information such as age, sex, and length of time with the organization. Your responses to these personal items will not be used to identify you. Rather, they will be used to study how different groups of people respond to the questions.

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3001 SOUTH STATE STREET
SUITE 401
ANN ARBOR MICHIGAN 48104-7352
313 769-1980

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INSTRUCTIONS

I. Most questions have five possible responses. Please record your answers by filling in one of the numbered circles next to each question. If none of the choices matches your perception exactly, use the one that is closest to it.

II. Please use a #2 black lead pencil, and observe these requirements:
   - Make heavy black marks that fill the circle
   - Erase completely any answer you wish to change
   - Do not make any stray marks

III. Please do not staple or fold the questionnaire.

IV. This questionnaire is designed for machine scanning of your responses. Questions are answered by marking the appropriate answer spaces (circles) as illustrated in this example:

   Q. Which is the only marking instrument that will be read properly?

   (A) Ballpoint pen
   (B) Fountain pen
   (C) #2 Black lead pencil
   (D) Other

V. In this questionnaire, the following terms have these definitions:

   Organization — The school or school district which employs you.

   Administrator — The person to whom you directly report. For teachers, this is typically the principal in large schools, this may be your department head or coordinator.

   Work group — All the persons in the same job function who report to the same administrator. For teachers, this may be the department or school.

   Department — A part of the organization which carries out a single function or related activities, and which usually involves more than one work group. For example, the Custodial Department. However, for teachers in small schools, this may be the same as the school.

PLEASE CHECK WITH THE PERSON CONDUCTING THE SURVEY TO MAKE SURE THAT ALL OF THESE TERMS HAVE BEEN CLEARLY DEFINED.
CODING INFORMATION

In order to provide confidentiality, all persons who report to the same administrator use the same five-digit code. Your group's code is located next to your administrator's name on the Administrators' Code List.

Write the Administrator's Code Number in the code boxes to the right. Below each box, fill in the circle that is numbered the same as the number in the box. If your administrator's name is not on the list, please ask the person conducting the survey.

Print the name of your administrator in this box.

ADDITIONAL CODING INFORMATION

Please indicate your JOB FUNCTION by filling in the appropriate circle.

Choose one category only:

- Central Office Administrator
- Central Office Staff
- Principal
- Assistant Principal
- Department Head
- Teacher
- Teacher Aide
- Counselor
- Building Office Staff
- Food Service Staff
- Custodian/Maintenance
- Transportation
- Other

For TEACHING STAFF ONLY, principal's department heads, teachers, and counselors:

Please indicate:

- SCHOOL TYPE
  - Elementary
  - Middle
  - Senior
  - Other

- DEPARTMENT
  - English
  - Foreign Languages
  - Mathematics
  - Science
  - Social Studies
  - Physical Education and Health
  - Home and Industrial Arts
  - Vocational Education
  - Fine Arts
  - Other

- GRADE
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9
  - 10
  - 11
  - 12
  - More than one grade
  - Pre-Kindergarten
  - Kindergarten
  - Other
Please refer to this "EXTENT SCALE GUIDE" in answering the following questions.

1. To what extent are decisions made at the appropriate levels for effective performance?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

2. To what extent are decision makers aware of problems, particularly problems at lower levels?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

3. To what extent are you involved in major decisions related to your work?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

4. To what extent is information given to your work group, about what is going on in other departments, adequate?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

5. To what extent does this organization tell your work group what it needs to know to do the best possible job?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

6. To what extent does the school board set high performance goals for educational excellence?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

7. To what extent does the superintendent set high performance goals for educational excellence?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

8. To what extent do different departments plan together and coordinate their efforts?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

9. To what extent do administrators, staff, and students work together as a team?
   - To a Very Great Extent
   - To a Great Extent
   - To Some Extent
   - To a Little Extent
   - To a Very Little Extent

10. How are conflicts between departments usually resolved?
    - Usually ignored
    - Little is done
    - Appealed to higher levels but not resolved
    - Resolved at a higher level in the organization
    - Worked out through mutual effort and understanding at the level where they appear
To what extent does each of the following groups of people influence what goes on in this organization?

<table>
<thead>
<tr>
<th>Group</th>
<th>Influence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal(s)</td>
<td></td>
</tr>
<tr>
<td>Teachers</td>
<td></td>
</tr>
<tr>
<td>Central Office Staff</td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>To what extent is your administrator friendly and supportive?</td>
<td></td>
</tr>
<tr>
<td>To what extent is your administrator interested in your success?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator try to help you with your problems?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator encourage the members of your work group to exchange opinions and ideas?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator encourage the members of your work group to work as a team?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator try to provide you with the materials and equipment you need to do your job well?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator give you useful information and ideas?</td>
<td></td>
</tr>
<tr>
<td>To what extent does your administrator encourage you to be innovative in developing more effective and efficient practices?</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Scale Options</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>23. To what extent does your administrator make sure that planning and</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>setting priorities are done well?</td>
<td></td>
</tr>
<tr>
<td>24. To what extent does your administrator have high goals for</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>educational performance?</td>
<td></td>
</tr>
<tr>
<td>25. To what extent does your administrator feel responsible for</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>ensuring that educational excellence is achieved?</td>
<td></td>
</tr>
<tr>
<td>26. To what extent does your administrator seek and use your ideas</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>about academic matters?</td>
<td></td>
</tr>
<tr>
<td>27. To what extent does your administrator seek and use your ideas</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>about nonacademic matters?</td>
<td></td>
</tr>
<tr>
<td>28. To what extent does your administrator use group meetings to solve</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>problems?</td>
<td></td>
</tr>
<tr>
<td>29. To what extent does your administrator handle the administrative</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>aspects of the job well?</td>
<td></td>
</tr>
<tr>
<td>30. To what extent does your administrator handle the technical (or</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>educational) aspects of the job well?</td>
<td></td>
</tr>
<tr>
<td>31. To what extent do you have confidence and trust in your</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>administrator?</td>
<td></td>
</tr>
<tr>
<td>32. To what extent do you view communications from your administrator</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>with trust?</td>
<td></td>
</tr>
<tr>
<td>33. To what extent do you feel free to talk to your administrator?</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>34. To what extent do members of your work group try to be friendly and</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>supportive to your administrator?</td>
<td></td>
</tr>
</tbody>
</table>
35 To what extent is the communication from your work group to your administrator accurate?

36 To what extent is communication open and candid between your administrator and your work group?

37 To what extent does your administrator know the problems faced by your work group?

38 To what extent do members of your work group try to be friendly and supportive to one another?

39 To what extent is communication open and candid among members of your work group?

40 To what extent do members of your work group encourage one another to do their best?

41 When conflicts arise between parties (groups or persons), to what extent are mutually acceptable solutions sought?

42 When solutions are reached, to what extent do the opposing parties accept and implement them?

43 To what extent do the members of your work group feel responsible for ensuring that educational excellence is achieved?

44 To what extent do students accept high performance goals?

45 To what extent is it worthwhile for you to do your best?

46 To what extent do you look forward to your working day?

47 Overall, to what extent is your work satisfying?

<table>
<thead>
<tr>
<th>Question</th>
<th>To a Great Extent</th>
<th>To Some Extent</th>
<th>To a Little Extent</th>
<th>To a Very Little Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
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<tr>
<td>47</td>
<td></td>
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</tr>
</tbody>
</table>
48 Your sex
1. Male
2. Female

49 How old are you?
1. 25 years old or less
2. 26 years - 35 years
3. 36 years - 45 years
4. 46 years - 55 years
5. 56 years or over

50 How long have you worked in this school system?
1. Less than 1 year
2. 1-5 years
3. 6-10 years
4. 11-15 years
5. 21 years or more

If there are additional questions, please mark your responses in the appropriate spaces below.
Appendix B

Profile of a School Index Components
### PROFILE OF A SCHOOL -- STAFF QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Index Components</th>
<th>Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLIMATE</strong></td>
<td></td>
</tr>
<tr>
<td>1. Decision Making</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>2. Communication</td>
<td>4, 5</td>
</tr>
<tr>
<td>3. Goal Commitment</td>
<td>6, 7</td>
</tr>
<tr>
<td>4. Coordination</td>
<td>8, 9, 10</td>
</tr>
<tr>
<td>5. Influence</td>
<td>11, 12, 13, 14</td>
</tr>
<tr>
<td><strong>LEADERSHIP</strong></td>
<td></td>
</tr>
<tr>
<td>6. Support</td>
<td>15, 16, 17</td>
</tr>
<tr>
<td>7. Team Building</td>
<td>18, 19</td>
</tr>
<tr>
<td>8. Work Facilitation</td>
<td>20, 21, 22</td>
</tr>
<tr>
<td>9. Goal Emphasis</td>
<td>23, 24, 25</td>
</tr>
<tr>
<td>10. Encouragement of Participation</td>
<td>26, 27, 28</td>
</tr>
<tr>
<td>11. Job Performance</td>
<td>29, 30</td>
</tr>
<tr>
<td><strong>INTERVENING</strong></td>
<td></td>
</tr>
<tr>
<td>12. Trust in Administrator</td>
<td>31, 32, 33</td>
</tr>
<tr>
<td>13. Openness with Administrator</td>
<td>34, 35, 36, 37</td>
</tr>
<tr>
<td>14. Peer Relationships</td>
<td>38, 39, 40</td>
</tr>
<tr>
<td>15. Conflict Resolution</td>
<td>41, 42</td>
</tr>
<tr>
<td><strong>END RESULTS</strong></td>
<td></td>
</tr>
<tr>
<td>16. Educational Excellence</td>
<td>43, 44</td>
</tr>
<tr>
<td>17. Job Satisfaction</td>
<td>45, 46, 47</td>
</tr>
<tr>
<td>Demographic information</td>
<td>48, 49, 50</td>
</tr>
</tbody>
</table>

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Appendix C

School Contextual Effects
School Contextual Effects

Please provide the following information.

School: __________________________________________________

School System: ___________________________________________

School Building Principal: ______________________________

Total Number of Students: _________________________________

Total Number of Students Receiving Free and/or Reduced Lunch: _________________________________

Number of Black Students: _________________________________
Number of White Students: _________________________________
Number of Other Students: _________________________________

Location of School (please check one):

_______ urban
_______ suburban
_______ rural
VITA
DiAnn B. Casteel

Address: 2545 Flatwoods Road
Greeneville, TN 37745

Personal Data: Date of Birth: December 16, 1953
Marital Status: Married, 3 Children

Education: Public Schools, Kingsport, Tennessee and
Greene County, Tennessee
East Tennessee State University, Johnson
City, Tennessee; education history and
East Tennessee State University, Johnson
City, Tennessee; reading specialist, M.A.,
1976.
East Tennessee State University, Johnson
City, Tennessee; 45 quarter hours school
administration and supervision, 1977 -
1980.
East Tennessee State University, Johnson
City, Tennessee; educational leadership and

Tennessee
Endorsements: 001 Elementary Education 1-9
021 History 7-12
022 Geography 7-12
023 Government 7-12
025 Sociology 7-12
075 Reading Specialist K-8
076 Reading Specialist 7-12
080 Psychology 7-12
090 Superintendent
109 Administration/Supervision K-8
110 Administration/Supervision 7-12

Honors: Outstanding Citizen Award, Ruritan National,
1986
4-H Emerald Club Leader Award, 1987
DIANA Award, Epsilon Sigma Alpha, 1990
Exchange Club of Greeneville, Tennessee, Book
o: Golden Deeds Awards, 1992
1996, Marquis
1994-1995, Marquis

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Most Admired Men and Women of the Year, 1st Annual, 1992-1993, American Biographical Institute
Five Hundred Leaders of Influence, 1993, American Biographical Institute

Professional Experience:
Teacher, Doak Elementary School, Greene County, Greeneville, Tennessee, 1991-1994
Coordinator, Project CHOICE, Greeneville-Greene County Center for Technology, Greeneville, Tennessee 1990-1991
Adjunct Faculty, Department of Geography, Tusculum College, 1-1990 to 12-1991
Evening and Summer Instructor, Comprehensive Competencies Program (CCP), Greeneville-Greene County Center for Technology, Greeneville, Tennessee 1989-1991
Teacher, various grades K-12, Greene County, Greeneville, Tennessee, 1973-1990

Memberships:
Greene County Education Association
East Tennessee Education Association
Tennessee Education Association
National Education Association
International Platform Association
Research Board of Advisors, American Biographical Institute
Concerned Citizens of Doak Greeneville Schools in Action
U.S.S. Greeneville, Inc.
Main Street Greeneville, Inc.
Nathanael Greene Museum
Kappa Delta Pi
Phi Delta Kappa
Tennessee Association for Supervision and Curriculum Development
Association for Supervision and Curriculum Development
American Association of School Administrators

Hobbies
Reading
Swimming
Creative cooking