Perceptions of Iowa high school principals on the relationship of leadership, school size, and socioeconomic level to school culture

Kevin Wayne Fiene

University of Northern Iowa

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PERCEPTIONS OF IOWA HIGH SCHOOL PRINCIPALS ON THE
RELATIONSHIP OF LEADERSHIP, SCHOOL SIZE, AND
SOCIOECONOMIC LEVEL TO SCHOOL CULTURE

A Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved:

Dr. David Else, Chair
Dr. Steve Corbin, Committee Member
Dr. Dale Jackson, Committee Member
Dr. James Kelly, Committee Member
Dr. Bruce Rogers, Committee Member

Kevin Wayne Fiene
University of Northern Iowa
December 1999
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Approved:

Dr. David Else, Chair

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December 1999
ABSTRACT

American society is changing. Consequently, public schools are being called to change as well. Previous reform efforts have failed to bring about substantive change and improvement. Current reform efforts are calling for the changing of school culture. What factors influence school culture? What role does leadership, school size, and socioeconomic levels play in developing school culture?

The purpose of this study was to investigate the relationship of leadership, school size, and socioeconomic level to school culture utilizing the Competing Values Framework. The Competing Values Framework provided four ideal culture types and eight leadership roles. Culture types included group, developmental, rational goal, and hierarchical. Leadership roles were facilitator and mentor (group culture), innovator and broker (developmental), producer and director (rational goal), and coordinator and monitor (hierarchical). Surveys to 250 Iowa high school principals provided perceptual data from 233 respondents on leadership roles and culture types. Data on socioeconomic level (percentage of students on free/reduced lunch), building size (enrollment), and demographic data on public high school principals in Iowa were garnered from the Iowa Department of Education.

Four causal models were developed and tested using descriptive statistics, correlation, and path analysis utilizing multiple regression and stepwise multiple regression. Culture type was the dependent (endogenous) variable. Two leadership roles, percentage of students on free/reduced lunch (socioeconomic level), and school (building) size served as independent (exogenous) variables. Statistical testing was
conducted for the total sample population, small school sample (enrollment less than 300), medium size schools (enrollment of 300 to 799), and large size schools (enrollment greater than or equal to 800).

Results of the study for the total sample population \((n = 233)\) showed the simplest path model for each culture type to include, group—facilitator leadership role, developmental—innovator leadership role and building size, rational goal—producer leadership role, and hierarchical—coordinator and monitor leadership roles.

Results of the small school sample \((n = 92)\) showed the simplest path model for each culture type to include, group—none, developmental—innovator leadership role, rational goal—producer leadership role, and hierarchical—coordinator leadership role.

In the medium size schools \((n = 95)\), results showed the simplest path model for each culture type to be, group—mentor leadership role, developmental—innovator leadership role, rational goal—producer and director leadership roles, and hierarchical—monitor leadership role.

Results for large size schools \((n = 46)\) showed the simplest path model for each culture type to be, group—mentor leadership role, developmental—none, rational goal—producer leadership role, and hierarchical—monitor leadership role.

The results support the role of the principal as a builder of culture. The results did not support the relationship between free/reduced lunch (socioeconomic level) and culture types. They also did not support the relationship between school size and culture type. Further quantitative research on school culture is recommended.
ACKNOWLEDGEMENTS

I would first like to thank the people who helped shape my thinking and the development of this dissertation. Included are my committee members, Dr. Dave Else, Dr. Steve Corbin, Dr. Dale Jackson, Dr. Jim Kelly, and Dr. Bruce Rogers. They were splendid to work with in this project. I also would like to thank Dr. Fred Ribich, professor at Wartburg College. Fred was very helpful in making sense of all the numbers in chapter four.

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# TABLE OF CONTENTS

## CHAPTER PAGE

### I. STATEMENT OF THE PROBLEM

- Background Information .................................................... 1
- Conceptual Base .................................................................................. 3
- Purpose of the Study ......................................................................... 7
- Definition of Terms .......................................................................... 7
- Research Question and Hypotheses ........................................... 12
- Path Model and Their Variables .................................................. 14
- Assumptions ...................................................................................... 16
- Limitations ......................................................................................... 17
- Organization of the Study ............................................................... 18

### II. REVIEW OF THE LITERATURE

- Call for Change/Reform ....................................................................... 20
  - First Wave of Reform—Mandates .................................................. 20
  - Second Wave of Reform—Creating Effective Schools .................. 22
    - Organization of Schools .............................................................. 24
  - Third Wave of Reform—Cultural Perspective ............................... 28
    - School Climate ........................................................................... 29
    - School Culture .......................................................................... 30

- Culture .................................................................................................. 31
  - Culture — Roots in Anthropology ................................................. 31
  - Culture and the Corporate World .................................................. 31
  - Culture and Schools ...................................................................... 33
    - Assessing School Culture ............................................................ 37

- Principal Leadership and Culture .................................................. 37
  - Role of the Principal—Management ............................................. 37
  - Scientific Management ................................................................. 37
  - Transactional Leadership .............................................................. 38
  - Role of the Principal—Leadership ................................................ 39
    - Instructional Leadership .............................................................. 39
    - Transformational Leadership ....................................................... 41
  - The Principal and Culture ............................................................ 44
Multiple Regression Analysis ................................................................. 88
  Total Sample Population ................................................................. 102
  Small School Sample ................................................................. 102
  Medium Size Schools .............................................................. 102
  Large Size Schools ................................................................. 102
Stepwise Multiple Regression Analysis ...................................................... 103
  Total Sample Population ............................................................... 108
  Small School Sample .............................................................. 108
  Medium Size Schools .............................................................. 109
  Large Size Schools ................................................................. 109
Statistical Findings in Support/Non-Support of the Hypotheses .................. 110
  Hypothesis One .................................................................................. 110
  Total Sample Population ............................................................... 110
  Small School Sample .............................................................. 111
  Medium Size Schools .............................................................. 112
  Large Size Schools ................................................................. 112
  Hypothesis Two .................................................................................. 113
  Hypothesis Three ........................................................................... 113
  Hypothesis Four ................................................................................ 114
  Hypothesis Five ................................................................................ 115
V. SUMMARY AND CONCLUSIONS ................................................................ 116
Summary ................................................................................................................. 117
  Total Sample Population ............................................................... 119
  Small School Sample .............................................................. 120
  Medium Size Schools .............................................................. 120
  Large Size Schools ................................................................. 121
Conclusions .............................................................................................................. 122
Limitations ............................................................................................................. 127
Recommendations ................................................................................................. 128
Reflections .............................................................................................................. 130
References ............................................................................................................. 132
Appendix A
Conclusions Drawn By Ott (1993) ................................................................. 149
LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Means and Standard Deviations for Path Variables—Total Sample</td>
</tr>
<tr>
<td>2</td>
<td>Means and Standard Deviations for Path Variables—Small School Sample</td>
</tr>
<tr>
<td>3</td>
<td>Means and Standard Deviations for Path Variables—Medium Size Schools</td>
</tr>
<tr>
<td>4</td>
<td>Means and Standard Deviations for Path Variables—Large Size Schools</td>
</tr>
<tr>
<td>5</td>
<td>Correlations Among Variables—Total Sample</td>
</tr>
<tr>
<td>6</td>
<td>Correlations Among Variables—Small School Sample</td>
</tr>
<tr>
<td>7</td>
<td>Correlations Among Variables—Medium Size Schools</td>
</tr>
<tr>
<td>8</td>
<td>Correlations Among Variables—Large Size Schools</td>
</tr>
<tr>
<td>9</td>
<td>Pearson Correlation Coefficients for Path Variables</td>
</tr>
<tr>
<td>10</td>
<td>Multiple Regression Statistics—Total Sample</td>
</tr>
<tr>
<td>11</td>
<td>Multiple Regression Statistics—Small School Sample</td>
</tr>
<tr>
<td>12</td>
<td>Multiple Regression Statistics—Medium Size Schools</td>
</tr>
<tr>
<td>13</td>
<td>Multiple Regression Statistics—Large Size Schools</td>
</tr>
<tr>
<td>14</td>
<td>Mean Scores of Culture Types and Results of Paired Sample t-Tests for Culture Types Within Total Population, Small School Sample, Medium Size Schools, and Large Size Schools</td>
</tr>
<tr>
<td>15</td>
<td>Mean Scores for Frequency of Leadership Roles for Total Sample, Small School Sample, Medium Size Schools, and Large Size Schools</td>
</tr>
<tr>
<td>F1</td>
<td>Descriptive Statistics for All Schools in Iowa</td>
</tr>
</tbody>
</table>
F2 Descriptive Statistics for Schools Used in the Study .................................................. 162
F3 Descriptive Statistics for all Small Size Schools in Iowa ........................................... 163
F4 Descriptive Statistics for all Small Size Schools in Iowa Used in the Study .................. 164
F5 Descriptive Statistics for all Medium Size Schools in Iowa ........................................ 165
F6 Descriptive Statistics for all Large Size Schools in Iowa ........................................... 166
<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Path Model of Group Culture</td>
</tr>
<tr>
<td>2</td>
<td>Path Model of Developmental Culture</td>
</tr>
<tr>
<td>3</td>
<td>Path Model of Rational Goal Culture</td>
</tr>
<tr>
<td>4</td>
<td>Path Model of Hierarchical Culture</td>
</tr>
<tr>
<td>5</td>
<td>The Competing Values Framework: Culture</td>
</tr>
<tr>
<td>6</td>
<td>The Competing Values Framework of Leadership Roles</td>
</tr>
<tr>
<td>7</td>
<td>Path Model of Group Culture</td>
</tr>
<tr>
<td>8</td>
<td>Path Model of Developmental Culture</td>
</tr>
<tr>
<td>9</td>
<td>Path Model of Rational Goal Culture</td>
</tr>
<tr>
<td>10</td>
<td>Path Model of Hierarchical Culture</td>
</tr>
<tr>
<td>11</td>
<td>Path Model of Group Culture</td>
</tr>
<tr>
<td>12</td>
<td>Path Model of Developmental Culture</td>
</tr>
<tr>
<td>13</td>
<td>Path Model of Rational Goal Culture</td>
</tr>
<tr>
<td>14</td>
<td>Path Model of Hierarchical Culture</td>
</tr>
<tr>
<td>15</td>
<td>Path Model with Multiple Regression Statistics for Group Culture—Total Sample</td>
</tr>
<tr>
<td>16</td>
<td>Path Model with Multiple Regression Statistics for Developmental Culture—Total Sample</td>
</tr>
<tr>
<td>17</td>
<td>Path Model with Multiple Regression Statistics for Rational Goal Culture—Total Sample</td>
</tr>
<tr>
<td>18</td>
<td>Path Model with Multiple Regression Statistics for Hierarchical Culture—Total Sample</td>
</tr>
</tbody>
</table>
19 Path Model with Multiple Regression Statistics for Group Culture—Small School Sample ................................................. 96

20 Path Model with Multiple Regression Statistics for Developmental Culture—Small School Sample ................................................. 96

21 Path Model with Multiple Regression Statistics for Rational Goal Culture—Small School Sample ............................................................... 97

22 Path Model with Multiple Regression Statistics for Hierarchical Culture—Small School Sample ....................................................................................97

23 Path Model with Multiple Regression Statistics for Group Culture—Medium Size Schools ...................................................................................98

24 Path Model with Multiple Regression Statistics for Developmental Culture—Medium Size Schools ...................................................................................98

25 Path Model with Multiple Regression Statistics for Rational Goal Culture—Medium Size Schools ...................................................................................99

26 Path Model with Multiple Regression Statistics for Hierarchical Culture—Medium Size Schools ...................................................................................99

27 Path Model with Multiple Regression Statistics for Group Culture—Large Size Schools ...................................................................................100

28 Path Model with Multiple Regression Statistics for Developmental Culture—Large Size Schools ...................................................................................100

29 Path Model with Multiple Regression Statistics for Rational Goal Culture—Large Size Schools ...................................................................................101

30 Path Model with Multiple Regression Statistics for Hierarchical Culture—Large Size Schools ...................................................................................101

31 Stepwise Multiple Regression Statistics for the Simplest Path Model of Group Culture Type—Total Sample ...................................................................................104

32 Stepwise Multiple Regression Statistics for the Simplest Path Model of Developmental Culture Type—Total Sample .............................................................................104

33 Stepwise Multiple Regression Statistics for the Simplest Path Model of Rational Goal Culture Type—Total Sample .............................................................................104
34 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Hierarchical Culture Type—Total Sample.......................... 104

35 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Developmental Culture Type—Small School Sample.................. 105

36 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Rational Goal Culture Type—Small School Sample...................... 105

37 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Hierarchical Culture Type—Small School Sample........................ 105

38 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Group Culture Type—Medium Size Schools.................................. 106

39 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Developmental Culture Type—Medium Size Schools...................... 106

40 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Rational Goal Culture Type—Medium Size Schools........................ 106

41 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Hierarchical Culture Type—Medium Size Schools.......................... 106

42 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Group Culture Type—Large Size Schools..................................... 107

43 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Rational Goal Culture Type—Large Size Schools.......................... 107

44 Stepwise Multiple Regression Statistics for the Simplest Path
Model of Hierarchical Culture Type—Large Size Schools................................. 107
CHAPTER I
STATEMENT OF THE PROBLEM

Background Information

American society is undergoing change. According to the Children's Defense Fund (Children's Defense Fund, 1998), 1 in 2 children will live in a single-parent family at some point in childhood, 1 in 3 children is a year or more behind in school, 1 in 4 children is born poor, 1 in 4 children lives with only one parent, 1 in 5 children is born to a mother who received no prenatal care in the first three months of pregnancy, 1 in 11 children lives at less than half the poverty level, and 1 in 680 children is killed by gunfire before age 20.

The American economy, as part of the global economy, is no longer built on manufacturing, but rather on processing and disseminating information (Daggett, 1992). According to Daggett (O'Neil, 1995), in 1950, 60% of the jobs in the United States were unskilled, in 1995, 33% of the jobs in the United States were unskilled, and in 2000, it is estimated that only 15% of the jobs in the United States will be unskilled. Daggett also indicates that although we have moved into a global economy, our school curriculum has not noticeably changed. We continue to prepare kids for college when statistics show that only 1 in 5 will complete a four year degree. Boutwell (1997) predicted that by the year 2005 only 20% of well-trained college graduates will find high-paying, challenging jobs. Bonstingl (1997) indicates curricular area study is not what students need for the next century. Rather the qualities of leadership, partnership, focus on systems, process
orientation, and continuous improvement will be the necessary attributes for successful employment.

These changes in American society are raising awareness and criticism of public education. Forty-seven percent of Americans say they do not believe that a high school diploma guarantees a student has learned the basic skills of reading, writing and arithmetic, and 84% of respondents to a Gallup survey favored higher standards than currently exist in math, English, history and science as requirements for high school graduation (Elam & Rose, 1995).

The call for change in public education gained impetus with the formation of the National Commission of Excellence in Education in 1981 by then Secretary of Education, Terrel Bell. The Commission’s 1983 publication of A Nation at Risk: The Imperative for School Reform set the stage for multiple reform efforts in public education. Several waves of reform efforts have occurred since the publication of A Nation at Risk.

At the high school level,

Buffeted by powerful and unsettling winds, both the high school and the country are searching for stability and renewal. . . . Powerful transformations in values and behavior, in expectations and rewards, and even in the family itself render it essential that the high school re-evaluate its purposes and functions, just as the society around it struggles to come to terms with the ramifications of these same changes. (Commission on Restructuring of the American High School, 1996, p. 3)

According to Cunningham and Gresso (1993), initial reform efforts were focused as top-down mandates to be implemented by teachers, administrators, and local schools. Mandates came from the national and state governments, as well as from within individual states. The second wave of reform was based on the effective schools research with an emphasis on applying basic principles to all educational settings. Recently, as
part of the second wave, or the beginning of a third wave of reform, an emphasis on local school culture and climate has emerged. This movement toward reform and restructuring views each school as having a distinctive culture made up of values, norms, beliefs, and roles that people assume within the school (Schein, 1992). Change efforts within this cultural perspective are focused on the people within the school and on developing their link to the culture of the school. Attention is paid to changing the roles and relationships of primary stakeholders in education, including principals, teachers, students, parents, and community (Lieberman, 1990).

Currently, little is known about how school culture develops. Most of the recent literature on shaping culture comes in the form of ethnographic or case studies, which provide rich, deep descriptions of those schools involved in the study (Deal & Peterson, 1990, 1994). However, little of these studies may be used to transcend schools and to allow for generalizations.

Conceptual Base

This study investigated the relationship of leadership, socioeconomic levels, and school size to school culture by utilizing The Competing Values Framework (Quinn, 1988; Quinn & Rohrbaugh, 1981, 1983) at the high school level. The Competing Values model provided a framework and psychometrically sound instruments to quantitatively assess the relationship between leadership and culture types (Miles & Snow, 1978; Mintzberg, 1975; Ott, 1993; Quinn, 1988; Quinn & McGrath, 1982).

The Competing Values Framework has been utilized primarily within the business world but was used in a previous doctoral dissertation (Ott, 1993). The Competing
Values Framework provides four ideal culture types including group or human relations culture type, developmental or open systems culture type, rational goal culture type, and hierarchical or internal processes culture type. Each of these culture types has identified beliefs and assumptions that guide action within the culture type.

The Competing Values Framework also provides a leadership model. Each of the four ideal culture types is linked with two leadership roles, with set characteristics of these leadership roles already developed. Within the Competing Values Framework:

1. Group or human relations culture type—facilitator and mentor leadership roles
2. Developmental or open systems culture type—innovator and broker leadership roles
3. Rational goal culture type—producer and director leadership roles
4. Hierarchical or internal processes culture type—coordinator and monitor leadership roles.

In addition to leadership, other factors within a school may influence culture. Various studies support the link between school size and culture (Berlin, Cienkus, & Jensen, 1989; Commission on the Restructuring of the American High School, 1996; Green & Stevens, 1988; Lee, 1996; Lomotey & Swanson, 1989; Sizer, 1996; Slater, 1989; Webb, 1989). This study further explored the relationship of school size and culture.

This study also explored the indirect relationship of socioeconomic level and school culture. The percentage of students on free/reduced lunch is often used as a measure of socioeconomic level. According to J. Gould (personal communication, January 25,
of the Iowa Department of Education, the percentage of students receiving free/reduced lunch is used most often as a measure of socioeconomic level because, unlike any other measure, it is reported on a yearly basis.

The current body of literature suggests a relationship between socioeconomic level and various components of school culture. Ott (1993) is the only study to directly investigate socioeconomic level with school culture as defined by the Competing Values Framework. This study adds to the literature in this area.

This study was a replication and expansion of a dissertation completed in 1993 by Dr. Jan Ott, entitled, "The Relationship of Leadership, Socioeconomic Status, and School Size in Developing School Culture: A Study of Elementary School Principals."

According to Gall, Borg, and Gall (1996), constructive replication of studies increases the validity of theoretical studies in education. They state, "The hypothesis becomes increasingly credible when it is demonstrated that the relationship between the two variables holds up after several constructive replications in which different measures of one or both variables are used each time" (p. 194). In this study, the research design of Ott's study was replicated, while the sample population was differentiated by utilizing public high school principals in the state of Iowa rather than elementary principals.

The major conclusions drawn by Ott (1993) are listed in Appendix A. In referencing the Competing Values Framework used in her study, Ott noted that, "Replication is recommended to validate the application to education. Replication among high school, junior high, and middle school principals is also recommended for comparison and contrast" (p. 157).
High schools differ from elementary schools. High schools are typically structured around credits or Carnegie units earned within particular courses. A heavy emphasis is placed on academic disciplines and/or departments. Students may rotate six to eight times during a typical day to different classes with different teachers. Academic performance is measured against some form of standard, be it traditional grades, national/state/local standards or benchmarks, or against criteria developed within an individual classroom. High school teachers are trained as experts in one or two particular disciplines or areas. Further, sizes of high schools range from extremely small to very large. Co/extracurricular activities are also present within a traditional high school.

In contrast, elementary schools are traditionally designed around one teacher for a class of students. Excepting specials such as physical education, art, and music, most of the academic day is spent in a self-contained classroom. Information may be presented in a thematic approach with little specific emphasis on individual disciplines. Elementary teachers are trained as generalists in all subject matters. Academic performance is measured but with a focus beyond traditional grades and Carnegie units. Sizes of elementary schools vary, but not nearly as greatly as high schools. Very few co/extracurricular opportunities are present in a traditional elementary school.

There are exceptions to the traditional high school and elementary school presented above. There may be high schools that are structured thematically or have schools-within-schools. There also may be a certain amount of departmentalization in certain elementary grades or schools. However, the differences between high schools and elementary schools remain.
This study was designed to provide additional knowledge to the field of school culture by investigating the relationship of leadership, socioeconomic levels, and school size within public high schools in Iowa.

Purpose of the Study

The primary purpose of this study was to develop and test causal models in determining perceptions of Iowa high school principals on the relationship of leadership, school size, and socioeconomic levels to school culture. A secondary purpose of this study was to review the authoritative literature on the relationship of leadership, school size, and socioeconomic level to school culture.

The perception of the influence of leadership on school culture was investigated by utilizing the Competing Values Framework. The ideal culture type was treated as the dependent variable, while the leadership style, as presented in the Competing Values Framework, school size, and socioeconomic level were treated as independent variables.

Definition of Terms

1. **Broker Leadership Role**: The manager (principal) is “concerned with maintaining external legitimacy and obtaining external resources. Here the manager is expected to be politically astute, persuasive, influential, and powerful. Image, appearance, and reputation are important. The manager is expected to meet with people from outside the unit, to represent the company and market its product or services, to act as a liaison and spokesperson, and to acquire resources” (Quinn, 1988, p. 41).
2. **Building Size:** Large high schools were classified as having an enrollment greater than or equal to 800, medium an enrollment of 300 to 799, and small an enrollment of less than 300. All enrollment figures were for the number of students in grades 9-12 or 10-12, in Iowa public high schools, as reported to the Iowa Department of Education on September 18, 1998.

3. **Coordinator Leadership Role:** The manager (principal) is "expected to maintain the structure and flow of the system. The person in this role is expected to be dependable and reliable. Behaviors include various forms of work facilitation such as scheduling, organizing, and coordinating staff efforts, handling crises, and attending to technological, logistical, and housekeeping issues" (Quinn, 1988, p. 39).

4. **Culture:** A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. Culture is obvious at the surface level in the form of traditions, customs, rituals, norms, roles and role relationships. It, however, goes to the deeper level of values and beliefs that drive action (Schein, 1985, 1992).

5. **Culture Profile:** The mean score in the survey on each of the culture types as presented in the Competing Values Framework. The survey was sent to Iowa public high school principals participating in the study. Quinn (1988) indicates organizations have attributes of more than one culture type.
6. **Culture Type**: The system of classifying four ideal culture types as presented in the Competing Values Framework. The four ideal culture types are Developmental, Group Culture, Hierarchical, and Rational Goal (Quinn, 1988).

7. **Developmental or Open Systems Culture Type**: An ideal culture type that “fosters adaptability and change. There is great emphasis on innovation and creativity, that is, on doing things that have never been done before. Here people are part of a collectivity attempting to do something of great importance. Motivation is seldom an issue. People feel fully committed and fully challenged. If they succeed in implementing a new vision, considerable external recognition and resources will follow. They function best when the task is not well understood and when there is great urgency about completing it. Here managers are expected to be innovators and brokers” (Quinn, 1988, p. 40).

8. **Director Leadership Role**: The manager (principal) is “expected to clarify expectations through processes such as planning and goal setting and to be a decisive initiator who defines problems, selects alternatives, establishes objectives, defines roles and tasks, generates rules and policies, evaluates performance, and gives instructions” (Quinn, 1988, pp. 39-40).

9. **District Size**: The number of public school students in grades K-12, as reported to the Iowa Department of Education on September 18, 1998.

10. **Facilitator Leadership Role**: The manager (principal) is “expected to foster collective effort, to build cohesion and teamwork, and to manage interpersonal conflict. In this role the leader is described as process oriented. Expected behaviors include
intervening in interpersonal disputes, using conflict reduction techniques, developing cohesion and morale, obtaining input and participation, and facilitating group problem solving” (Quinn, 1988, p. 41).

11. Group or Human Relations Culture Type: An ideal culture type where “the emphasis is on human resources and the development of commitment. Here there is a great emphasis on information sharing and participative decision making. People are seen as not isolated individuals but as cooperating members of a common social system with a common stake in what happens. They are held together by a sense of affiliation and belonging. Here managers are expected to be facilitators and mentors” (Quinn, 1988, p. 41).

12. Hierarchical or Internal Processes Culture Type: An ideal culture type where there is “great emphasis on measurement, documentation, and information management. People are given well-defined roles and are expected to follow rules that outline what they should do. The major reward for their efforts is job security. Hierarchies seem to function best when the task to be done is well understood and when time is not an important factor . . . managers are expected to play two primary roles. They are expected to monitor and to coordinate” (Quinn, 1988, pp. 38-39).

13. High School: A public school within Iowa that was comprised of grades 9-12 or grades 10-12.

14. Innovator Leadership Role: The manager (principal) is “expected to facilitate adaptation and change. The innovator absorbs uncertainty by monitoring outside environment, identifying important trends, and conceptualizing and projecting needed
changes. . . . In this role the manager is expected to be a creative, clever dreamer who sees the future, envisions innovations, packages them in inviting ways, and convinces others that they are necessary and desirable” (Quinn, 1988, p. 40).

15. **Leadership Role:** Defined by the Competing Values Framework to include eight different styles/roles of the manager (principal). Included were facilitator, mentor, innovator, broker, producer, director, coordinator, and monitor (Quinn, 1988).

16. **Mentor Leadership Role:** The manager (principal) is “expected to engage in the development of people through a caring, empathetic orientation. In this role the leader must be helpful, considerate, sensitive, approachable, open, and fair. He or she listens, supports legitimate requests, conveys appreciation, and gives compliments and credit. People are resources to be developed. The leader helps with skill building, provides training opportunities, and helps people develop plans for their own individual development” (Quinn, 1988, pp. 41-42).

17. **Monitor Leadership Role:** The manager (principal) is “expected to know what is going on in the unit, to determine if people are complying with the rules, and to see if the unit is meeting its quotas. The monitor knows all the facts and details and is good at quantitative analysis. Behaviors in this role include handling paper work, reviewing and responding to routine information, and carrying out inspections, tours and reviews of printouts and reports” (Quinn, 1988, p. 39).

18. **Organizational Culture:** Relates to the way organizations differ from each other in the manner in which they conduct business (Schein, 1985, 1992); Defines the way
individuals respond to one another and their expectations of the work to be completed (Cunningham & Gresso, 1993).

19. **Producer Leadership Role**: The manager (principal) is "expected to be task oriented and work focused and to have high interest, motivation, energy, and personal drive. Here a manager is supposed to accept responsibility, complete assignments, and maintain high personal productivity. This usually involves motivating members to increase production and to accomplish stated goals" (Quinn, 1988, p. 40).

20. **Rational Goal Culture Type**: An ideal culture type where "the major emphasis is on profit or the bottom line. There is an underlying theory of rational action. It assumes that goal clarification results in productive action. Here people are clearly instructed by a decisive authority figure and are rewarded financially if they perform well. If they do not, they are asked to leave. This system seems to assume task clarity and short time horizons . . . In this model, managers are expected to direct and to produce" (Quinn, 1988, p. 39).

21. **School Culture**: Historically transmitted patterns of meaning that include the norms, values, beliefs, and myths understood by members of the school community (Stolp, 1994).

22. **Socioeconomic Level**: The percentage of free/reduced lunch students within an Iowa public high school, as reported on September 18, 1998.

**Research Question and Hypotheses**

This study investigated the relationship of leadership roles, school size, and socioeconomic levels to school culture using the conceptual base provided by the
Competing Values Framework. To accomplish this, the following research question guided the study, “How do leadership roles, school size, and student socioeconomic level relate to school culture in Iowa public high schools?”

The following hypotheses were developed to supplement the research question.

1. Leadership roles assumed by high school principals in Iowa are significantly related to school culture types as defined below.
   a. Mentor and facilitator leadership roles are more related to group culture type than to developmental, rational goal, and hierarchical culture types.
   b. Innovator and broker leadership roles are more related to developmental culture type than to group, rational goal, and hierarchical culture types.
   c. Producer and director leadership roles are more related to rational goal culture type than to group, developmental, and hierarchical culture types.
   d. Monitor and coordinator leadership roles are more related to hierarchical culture type than to group, developmental, and rational goal culture types.

2. Small size schools are more likely to exhibit a strong relationship to group culture type and developmental culture type.

3. Medium size schools are more likely to exhibit a relationship with all four culture types, with no strong relationship to one culture type.

4. Large size schools are more likely to exhibit a strong relationship to hierarchical culture type and rational goal culture type.

5. The percentage of students on free/reduced lunch is inversely related to rational goal culture type.
Path Model and Their Variables

Four causal paths were developed to respond to the research question, "How do leadership roles, school size, and student socioeconomic levels relate to school culture in Iowa public high schools?" From the literature and the theoretical model provided by the Competing Values Framework, each causal path included four independent variables and one dependent variable. Independent variables in the study included two leadership roles, as defined in the Competing Values Framework, school (building) size, and socioeconomic level (percentage of students on free/reduced lunch). The dependent variable was school culture, as defined by the Competing Values Framework. The four causal models are presented in Figures 1, 2, 3, and 4. It should be noted in Figures 1, 2, 3, and 4 that the arrows point from the independent variable to the dependent variable.

Figure 1. Path model of group culture, with independent variables being facilitator leadership role, free/reduced lunch, building size, and mentor leadership role. Dependent variable is group culture.
Figure 2. Path model of developmental culture, with dependent variables being innovator leadership role, free/reduced lunch, building size, and broker leadership role. Dependent variable is developmental culture.

Figure 3. Path model of rational goal culture, with independent variables being producer leadership role, free/reduced lunch, building size, and director leadership role. Dependent variable is rational goal culture.
Figure 4. Path model of hierarchical culture, with independent variables being coordinator leadership role, free/reduced lunch, building size, and monitor leadership role. Dependent variable is hierarchical culture.

Assumptions

The following assumptions were made for this study.

1. Culture was a concept that provided a useful construct from which to better understand schools. Further, culture as a construct can help educators in framing positive change within schools.

2. The respondents to the survey were honest in their responses.

3. Perceptions of the principal fairly represented reality. Murphy (1947) states, “Indeed, the self-picture has all the strength of other perceptual stereotypes and in addition, serves as the chart by which the individual navigates” (p. 715). Haire (1959) adds, “An individual’s sanction to any situation is always a function, not of the absolute character of the interaction, but of his perception of it” (p. 191). Finally, Felix Mendelssohn defines reality as, “What is felt and believed” (Brussel, 1970, p. 453). It
was assumed in this study that the perception of the respondent principal was reality to him/her.

4. Free/reduced lunch was a useful measure of socioeconomic levels.

5. The random sample utilized for the small schools sample was representative of the entire population within the small school classification.

Limitations

The following limitations for this study were identified.

1. This study consisted of public high school principals only from Iowa. This may or may not be representative of a larger geographic region.

2. The sample size of large school principals may limit generalizations from this study. It is recognized that the statistical power in the large school classification fell below the conventional, desired guideline of .80 probability of detecting a correlation (Cohen, 1977). To achieve a .80 confidence level of detecting a correlation at the .30 level, a sample size of approximately 85 would have been needed. Within this study and its definition of large school, a sample size of 85 was not possible. All available large size public high schools were included in the study.

3. Data were gathered at only one point in time without any planned follow-up study.

4. The perceptions of high school principals may have been different than the perceptions of others within the school.

5. Data were measured against the Competing Values Framework, a theoretical model.
6. The study did not account for factors outside the scope of the study, be they internal factors or external factors.

Organization of the Study

The first chapter was entitled, "Statement of the Problem" and identified the problem being researched, the research question, hypotheses, variables that were used, assumptions, and limitations. Chapter II, "Review of the Literature," reviewed literature in the areas of school reform, culture, leadership, school size, socioeconomic level, and the Competing Values Framework. Chapter III, "Design of the Study," explained the methodology used in the study. Included were subjects, selection of subjects, instruments used, methods of data collection, and treatment of the data. Chapter IV, "Results," shared the results of the study. Included were descriptive statistics, correlation, and path analysis using multiple regression and stepwise multiple regression. Results were shared for the total sample, small size schools, medium size schools, and large size schools. The final chapter in the study was entitled, "Summary and Conclusions." This chapter summarized the results of the study, as well as offered conclusions, limitations, and recommendations for future research.
CHAPTER II
REVIEW OF THE LITERATURE

The primary purpose of this study, as stated in chapter one, was to develop and test causal models in determining perceptions of Iowa high school principals on the relationship of leadership, school size, and socioeconomic level to school culture. Chapter two reviews the literature related to each of the variables presented in the study. This review provides the background from which to statistically test the causal models presented.

Sources for the review of literature included ERIC searches, review of Dissertation Abstracts, and current books/periodicals within the areas of education, educational leadership, and organizational management. The review of literature is presented in six sections.

1. Call for Change/Reform. This section reviews the waves of reform in education and the organization of schools within the United States.

2. Culture. Section two reviews culture from anthropology, business and educational perspectives, and the assessment of culture.

3. Principal Leadership and Culture. This section reviews the traditional principal role of management, the developing role of principal leadership, and the role of the principal as it relates to school culture.

4. School Size and Culture. Section four traces the research on school size in the United States during the 20th Century and its possible relationship to culture within the school setting.
5. **Socioeconomic Level and Culture.** This section reviews the literature on the relationship of socioeconomic levels and school culture.

6. **Competing Values Framework.** The final section of the chapter gives background on the Competing Values Framework that was used in this study.

**Call for Change/Reform**

American society is undergoing substantive change. Within the larger context of societal change, schools are being called on to reform, restructure, and transform to meet the changing needs of American society.

**First Wave of Reform—Mandates**

*A Nation at Risk* (National Commission on Excellence in Education, 1983) set off a call for reform in public education. The report was very critical of the status quo in public education.

> Our nation is at risk. Our once unchallenged preeminence in commerce, industry, science and technological innovation is being over taken by competitors throughout the world... the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people... If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. (National Commission on Excellence in Education, p. 5)

Although criticized for its rhetoric and analogies, the report set in motion multiple reform efforts within the United States. Since the publication of *A Nation at Risk*, over 1000 reports, documents, and books have been published calling for various forms of reform and restructuring in public education (Cunningham & Gresso, 1993).

Initial reform efforts centered on mandates from the national and state governments (Purkey & Smith, 1982), with a focus on regulatory initiatives (Johnson, 1990). Reforms
called for core curriculum, raising academic standards, improving teacher quality, attracting capable teachers, increasing graduation requirements, lengthening the school day and year, strengthening certification and accreditation, standardizing curriculum with an emphasis on conformity, increasing state regulation, and standardized testing of all students (Cunningham & Gresso, 1993; Johnson, 1990; Sidener, 1995).

These initial reform efforts were mandated from various levels of government and government bureaucracy, with little if any involvement from teachers, principals, or local school districts (Wincek, 1995). These reforms focused on power, which in turn created autocratic leaders and horizontal relationships within the school with the result being isolation in the workplace (Cunningham & Gresso, 1993). Initial reform efforts were viewed by teachers and principals as attacks on them, with the result being anger and resistance from people within the schools, and reinforcement for the industrial model of schooling (Johnson, 1990; Lightfoot, 1983; Rutter, Maughan, Mortimore, & Ouston, 1979).

The first wave of reform was characterized as emphasizing the ends rather than the means (Johnston, 1987). These reform efforts fell short of true educational reform and traditional, top-down reform efforts did little to substantively reform education (Deal, 1985; Johnston, 1987; Levine, 1986; Lieberman, 1990; Saphier & King, 1985). Comer (1980) concluded, “focusing on the environment external to the school is short-sighted and may lead to faulty assumptions and conclusions and that the major educational catalyst, the school staff, is a critical variable that has been ignored” (p. 47).
Second Wave of Reform—Creating Effective Schools

The second wave of reform in public education approached change through involvement of people within education at the district and building levels. This period acknowledged the failure of substantive change to occur without enlisting support of those people directly affected by the change. As Goodlad (1984) stated, “Schools will improve slowly, if at all, if reforms are thrust upon them” (p. 31). He went further in viewing the individual school as the critical element in reform.

Sidener (1995) highlighted the second wave of reform to include restructuring schools to, (a) become more productive, (b) be more closely aligned to research, (c) be more attuned to the technological and demographic changes of the larger society, and (d) a professionalization of teaching.

The call for reform in schools came from respected scholars, including John Goodlad, Ernest Boyer, Mortimer Adler, Theodore Sizer, Chester Finn Jr., and others (Cunningham & Gresso, 1993). During this second wave of reform, research was conducted on what constitutes an effective school with the intent of simulating or creating these conditions in all schools. Researchers on the correlates of effective schools included Ron Edmonds, Lawrence Lezotte, Michael Rutter, Wilbur Brookover, James Comer, Henry Levin, as well as others (Cunningham & Gresso, 1993).

Pursuant to creating effective schools, the Research for Better Schools (Cunningham & Gresso, 1993) publicized factors from 200 exemplary elementary schools. These schools will, (a) provide students with maximum opportunity; (b) use the curriculum to teach important content and skills; (c) have a principal who provides vision and energy,
and is the instructional leader of the school; (d) have teachers who influence and share the values, goals, and standards of their school; (e) identify standards and hold high expectations; (f) provide teachers with adequate resources; (g) accept no excuses; and (h) have specific educational goals. These standards or correlates became the cornerstone of the effective schools movement throughout education in the United States.

Lezotte (1988), working from the research of Ron Edmonds, offered specific premises about effective schools.

1. Schools will focus on teaching for learning.
2. Schools will be held accountable for measurable results.
3. Educational equity will be emphasized as the proportion of poor and minority students increases.
4. Decision making will be decentralized.
5. Collaboration and staff empowerment will increase.
6. Emphasis will be placed on the research of effective practices
7. Technology will be utilized to accelerate the rate of feedback for instruction.
8. Focus will be on student outcomes.

Hundreds of school improvement efforts across the country were begun using the effective schools research as its impetus (Cunningham & Gresso, 1993).

Recently, an empirical study was conducted to test the premises of effective schools research conducted by Edmonds, Block, Purkey, Smith, Coyle, Witcher, and Downer (Zigarelli, 1996). This study examined six premises: (a) employment of quality teachers, (b) teacher participation and satisfaction, (c) principal leadership and involvement, (d) a
culture of academic achievement, (e) positive relations with the central school administration, and (f) high parental involvement.

Zigarelli’s (1996) study found an achievement oriented school culture, principal’s autonomy in hiring and firing teachers, and high teacher morale were more important than the other premises. There was no evidence to support student achievement being influenced by teacher empowerment and autonomy, continuing teacher education, most principal management responsibilities, or warm relations between the school and administration.

During the second wave of reform, various initiatives and concepts were promulgated and instituted. Site-based management, shared decision making, and teacher empowerment were utilized in many places (Caulderon, 1991; Duttweiler, 1989, 1990; Firestone & Bader, 1991; Glickman, 1991; Hansen, 1990; Hoyle, 1991; Huddleston, 1991; Moss, 1991; Mutchler, 1989; Rungeling & Glover, 1991; Sousa, 1982; Williams, 1990). Decentralization of power also became popular (Delehant, 1990; Elshtain, 1983; Hunter, 1989; Murphy, 1991; Ornstein, 1989; Schuster, 1982; White, 1989). These reform efforts created change in structure and roles for teachers, principals, and central office personnel. The role of the principal will be explored later in chapter two.

Organization of Schools

Organizations, including schools, historically have been cast as either open or closed systems. Closed systems provide a model of stability where attention is paid to internal matters such as roles, objectives, strategies and plans. Factors outside the school,
including national and state governments/agencies and the community, function in a supportive, but hands-off mode. In a closed system, management is associated with the principles of scientific management, with a focus on control, orderliness, role identification and formal structures (Sergiovanni & Carver, 1980).

In an open system, interdependency exists between the school and the external environment. Interaction between the internal and external constituencies of a school is somewhat unpredictable and uncertain. External constituencies will sometimes mandate expectations for the school (Mitzel, 1982; Ott, 1993; Sergiovanni & Carver, 1980). The perception within a school operating as an open system is away from formal roles, rules, formal goals and rigid structure. Focus is on the changing, dynamic cycles of behavioral events and detailed relationships within the school (Hanson, 1991). Schools are neither open nor closed systems in an absolute sense. Hanson stated,

> It is more appropriate to think of organizations as maintaining degrees of openness and closedness with respect to scientific decisions, pressures, or materials facing the system at any given time. For example, a school may find it is quite open to advice from parents on pending curricular changes, but quite closed to advice on the proper procedures for disciplining students. (pp. 142-143)

Another structural form for schools is described as contingency theory. This approach purports features of open and closed systems are present within the organization. A great dependence is placed upon the characteristics of the members, the tasks to be completed, and the environment (Hanson, 1991). Hanson goes on to identify the basic assumptions of contingency theory.
1. Middle ground. Stresses the view that there is middle ground between universal principles of management that fit all organizations and that each organization is distinctly unique and should be studied within that premise.

2. Goals. There may be an overriding goal or purpose for the organization, but there are a number of formal and informal goals that may be overlapping, uncoordinated and contradictory present within the system.

3. Open system. All organizations are open systems.

4. Performance. The measure of performance is determined by the match between external requirements and internal conditions.

5. Basic function. The primary function of administration is alignment of people, technology and tasks into a viable system.

6. Best way. There is no one best way of organization and administration.

7. Approaches. Different management approaches may be appropriate in different parts of the organization.

8. Leadership style. Different leadership styles are appropriate for different situations.

9. Initiation. Managers seldom have an opportunity to address a problem at its conception.

10. Information. A manager never knows all that is going on around him/her.

11. Loosely-coupled systems. All organizations are loosely-coupled systems.

Weick (1976, 1982, 1995) suggests schools and organizations to be "loosely-coupled" or with "structural looseness." In a loosely-coupled organization, it is believed
that other organizational analyses pays little attention to the less obvious and rational structures, properties, and behaviors of schools. Weick maintains these less obvious structures and properties wield considerable influence and power, and that attention must be paid to these underlying elements of a school. Quality within schools will not be ensured by simply linking goals to curriculum, by aligning curriculum to teaching, or by aligning teaching to testing.

Hanson (1991) holds loose-coupling theory to include various sub-units of a school (e.g., academic departments, guidance office, principal's office) to have their own identify, functions, and boundaries. These different entities are tied together weakly or informally. Loose-coupling permits a school to make movements in several different directions by focusing on various problems at the same time. Within the context of loosely-coupled, it is possible for parts of the school to be quite traditional and other parts to be innovative.

Sergiovanni (1995b) believes an analysis of the effective schools literature leads to a belief that successful schools are both tightly controlled and loosely-coupled. This assertion is supported by Peters and Waterman (1982) in their study of America's best-run companies. Sergiovanni (1995b) asserts,

There exists in successful schools a strong culture and clear sense of purpose that defines the general thrust and nature of life for their inhabitants. At the same time, a great deal of freedom is given to teachers and others as to how these essential core values are to be honored and realized. This combination of tight structure – around clear and explicit themes representing the core of the school's culture – and of autonomy – so that people can pursue these themes in ways that make sense to them – may well be a key reason why these schools are so successful. (pp. 97-98)
Recently, Rowan (1995) suggested two alternate forms of school organization. The first is characterized by increasing bureaucratic controls over curriculum and teachers. In this model, bureaucracy is expanded with concrete responsibilities outlined for the different levels of bureaucracy. The second alternative form indicates a decrease in bureaucratic controls and the creation of innovative working conditions. In this setting, formal bureaucracy is limited, with an impetus toward creating a communal setting within the school. According to Rowan, loosely-coupled, open, and closed systems used earlier no longer fit today’s organization, and the focus of organizational analysis should be on the locus of control within the individual school.

**Third Wave of Reform—Cultural Perspective**

The literature does not distinguish a third wave of reform from the second, but the literature supports such a distinction. During the second wave of reform an emphasis was placed on re-creating successes of one school at other schools. The effective schools research provided a model for schools to apply to their individual setting (Glickman, 1990). Glickman, in referencing effective schools, stated,

People need to understand that these programs work not because they are so meticulously crafted and engineered but because the faculty in these schools will not let them fail... when an empowered school succeeds, it established curricular and instructional programs that are unique to its own staff, students, and history. The process of how a school came to such decisions is more transferable than the program. I shudder when I think of a superintendent or principal trying to implement in a top-down manner a program developed through grassroots participation. To do so merely repeats the mistakes made with “teacher-proof” curricula. It is only the general notions of informed, representational decision making that can be easily transported. Even the specific decision making model of a particular school should not be seen as prescriptive. (p. 72)
Criticism for the "cure-all" approach of the second wave of reform led to the introduction of school climate and school culture (Cunningham & Gresso, 1993).

**School Climate**

During the third wave of reform, attention was given to the individual school climate and setting. School climate is defined as the atmosphere in a school which affects the morale, productivity and satisfaction of those people within the school (Gonder & Hymes, 1994). Climate is affected by the physical environment/plant, organizational structure, social relationships, and individual behavior within the building (Dietrich & Bailey, 1996).

Multiple reform efforts, including welcoming of new staff and students, staff and student award programs, recognition for staff and students, school beautification, staff meals, colors of rooms, and lighting of schools, all focused on school climate (Blanchard, 1991; Hammond-Matthews & Mills, 1987; Keefe, Kelley, & Miller, 1985; Levine, 1988; Schultz, Glass, & Kamholz, 1987; Shapiro, 1993; Stenson, 1985). These changes were designed to make students, teachers, administrators, and parents feel good about their school. In turn, the likelihood of embracing change would be heightened (Gonder & Hymes, 1994; Hammond-Matthews & Mills, 1987). In his review of the literature, Peterson (1997) identified four factors influencing a positive school climate: (a) teacher efficacy, (b) collegiality, (c) student achievement, and (d) parental/community involvement. The day-to-day climate is important, but too superficial to support substantive change in education (Deal, 1985; Deal & Kennedy, 1983; Sergiovanni, 1984).
School Culture

The concept of school culture initially came from the work of authors outside of education. Books such as Corporate Culture (Deal & Kennedy, 1982), In Search of Excellence (Peters & Waterman, 1982), Theory Z (Ouchi, 1981), and The One Minute Manager (Blanchard & Johnson, 1982) provided initial impetus for businesses to look within themselves to develop commitment and ownership from their employees in the form of organizational culture. Organizational culture is the manner in which organizations differ from one another in how they conduct business (Schein, 1985, 1992). Willower and Smith (1986) indicate each organization has its own distinct culture.

After its introduction in the business world, organizational culture began to appear in education. Culture reflects the school’s values, beliefs, rituals, philosophy, norms of interaction, and expectations about the way things are done, and defines what is and what is not possible or acceptable (Karpicke & Murphy, 1996). According to Stolp and Smith (1995), culture includes climate, but climate does not encompass all aspects of school culture. Black (1997) indicates that school culture travels with a person wherever he/she goes, but climate remains in the building at any given point in time. Reform efforts within education point to the increasingly important role of school culture in supporting change (Akin, 1993; Barth, 1990; Blanchard, 1991; Blendinger & Jones, 1989; Darling-Hammond, 1992; Hoffman, 1994; Jantzi & Leithwood, 1995; Karpicke & Murphy, 1996; Lambert, 1988; Lane, 1992; Marshall, 1988; Mitchell & Willower, 1992; Sashkin & Sashkin, 1990; Sashkin & Walberg, 1993; Stoll & Fink, 1994; Thompson, 1991; Wincek, 1995). Followers of Deming began applying the principles of total quality management...
to education (Paul, 1996), and Senge (1990) posited his five disciplines of a learning organization. Deming and Senge have strong elements of culture within their design philosophy. According to Saphier and King (1985), “Essentially, the culture of the school is the foundation for school improvement” (p. 67).

Culture

Culture is a term or concept that has been used in different arenas including anthropology, corporate/business and education. It is a term that carries different meanings in different settings. This section reviews culture from anthropology, corporate/business, and educational worlds.

Culture—Roots in Anthropology

Culture has its roots in anthropology. Erickson (1987) defines culture in this manner:

Anthropologists generally think of it as a system of ordinary, taken-for-granted meanings and symbols with both explicit and implicit content that is deliberately and non-deliberately learned and shared among members of a naturally bounded social group. (p. 12)

Smircich (1983) saw culture as a term, within anthropology, with no conceptual agreement on its meaning. Many different versions of the meaning of culture have been identified, each providing a differing theory of culture (Erickson, 1987).

Culture and the Corporate World

According to Schein (1992), organizational culture is defined as,

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 12)
Schein goes further by distinguishing three different levels of culture: artifacts, espoused values, and basic underlying assumptions. Values lead to beliefs and eventually transform into basic assumptions within a given society. At the surface level are norms, roles, relationship between roles, traditions, customs, and rituals. The transformation of values into beliefs and ultimately into basic assumptions is a gradual process (Schein, 1992). Krakower (1987) sees culture as being comprised of values and beliefs commonly shared by a particular group that gives the group its identity and helps to formulate particular behaviors.

As previously mentioned, Blanchard and Johnson (1982), Deal and Kennedy (1982), Peters and Waterman (1982), and Ouchi (1981) introduced culture to the corporate world. Within organizational culture, a general consensus exists that shared core values must be aligned with the goals of the organization and that the degree to which core values are shared determines the strength of the organizational culture (Blendinger & Jones, 1989; Bolman & Deal, 1995; DePree, 1989; Eisner, 1992; Saphier & King, 1985; Schmuck & Runkel, 1988; Senge, 1990). Normative values of successful companies include, (a) productivity through people; (b) hands on management; (c) autonomy and entrepreneurship; (d) decentralized structure; (e) shared values; and (f) effective use of myths, stories, legends, and traditions. High among the shared values are quality, service, innovation, and respect for the importance of people to the success of the organization (Peters & Waterman, 1982).
Culture and Schools


Essentially, the culture of the school is the foundation for school improvement...if certain norms of school culture are strong, improvements in instruction will be significant, continuous and widespread; if these norms are weak, improvement will be at best infrequent, random and slow...giving shape and direction to the school’s culture should be a clear, articulated vision of what the school stands for...The development of “school excellence”, the development of a bright educational future for American youth depends on the creation of a rich and supportive culture. (p. 67)

Heck and Marcoulides (1996) state that culture “may be thought of as the manner in which an organization solves problems to achieve specific goals and to maintain itself over time. ... It is holistic, historically determined, socially constructed and difficult to change” (p. 77). Deal (1995) indicates that cultural elements give all organizations internal meaning, purpose and cohesion. Culture shapes the human experience.

Although there is increased attention in the literature to school culture, the field of education lacks a clear consistent definition of school culture. Culture has also been used synonymously with climate, ethos and saga (Stolp, 1994).

According to Firestone and Wilson (1985), school cultures are historically weak. Primary reasons for this are ambiguous, excessive, and poorly specified purposes; the isolation of teachers from one another and from administrators; and, low levels of
commitment by staff to the school's purpose. Influences which have shaped the culture of schools include organizational structure, composition of the teacher workforce, and the culture of teaching (Levine, 1986; Lieberman & Miller, 1982.) Feimen-Nemser and Floden (1986) describe isolated cultures in terms of little interaction between teachers, students, administrators and parents. Typical norms within a school impede collaboration and communication.

Saphier and King (1985) indicate twelve cultural norms should be present within the school: (a) collegiality; (b) experimentation; (c) high expectations; (d) trust and confidence; (e) tangible support; (f) reaching out to the knowledge bases; (g) appreciation and recognition; (h) caring, celebration, and humor; (i) involvement of parents in decision making; (j) protection of what is important; (k) traditions; and (l) honest, open communication.

Blendinger and Jones (1989) postulate that culture is the shared understanding people have about what is valued and how things are done within the school, and that shared values and beliefs are the backbone of strong school cultures. They go on to say the mission statement and guiding beliefs set the direction for planning and action with a school. Sidener (1995) points to a shifting of core beliefs and assumptions by members of school toward an even distribution of authority (hierarchies flatten to empower building administrators, teachers, parents, and students) and a shifting of work patterns away from places of competition and isolation, to a more collaborative setting.

Anderman, Belzer, and Smith (1991) identify five critical constructs that characterize the culture of a school: (a) focus on accomplishment, (b) recognition, (c) power, (d)
strength of daily climate, and (e) affiliation. Maxwell and Thomas (1991) state that culture is expressed through the behavior of the group and individuals. Four elements are present: (a) a belief system which embodies the assumptions and understandings of the group; (b) a group value system which expresses the common judgement about relative importance of issues; (c) norms that express behavioral expectations and associated standards which set limits of behavior; and (d) subsequent, resulting behavior.

Additional studies have explored a potential link between school culture, social support, and student achievement (Louis & Marks, 1996; Marks, Secada, & Doane, 1996; Neuman and Associates, 1996).

School cultures are undergoing transformation. Louis (1991, 1992) found a changing school culture as a result of opportunities to participate in decisions affecting work, increased collaboration between staff, opportunities to develop and use new skills and knowledge, knowledge of feedback, adequate resources, and pleasant working conditions. Sergiovanni (1993) indicates that schools need to be reconceptualized and viewed as communities to allow sharing of ideas, norms, purposes, professional socialization, collegiality, and natural interdependence. Hargreaves (1994) describes school culture as characterized by collaboration, opportunism, adaptable partnerships, and alliances directed by an orientation towards continual learning and improvement.

What is changing school culture? Cavanaugh and Dellar (1997) state,

The culture of a learning community is manifested by the sharing of values and norms amongst teachers, resulting in commonality of purpose and actions intended to improve the learning of students. The culture of the individual school is characterized by the perceived extent of participation in the interactive social processes which develop, maintain and transform the culture. (p. 184)
Lee, Bryk, and Smith (1993) view schools as moving from formal organizations with structures, roles, and rules, to more cultural sites with a focus on relationships and norms for cultural membership. School organizations are being conceptualized as communities (Barth, 1990; Lambert et al., 1995; Sergiovanni, 1994; Sergiovanni, 1995a; Starrett, 1996). Keefe and Howard (1997) go further and apply Senge’s (1990) disciplines of a learning organization to the school setting. According to Keefe and Howard, successful learning organizations exhibit three characteristics that enable them to initiate and sustain improvement: (a) well developed core competencies that serve as launch points for new programs, (b) attitudes that support continuous improvement, and (c) the capability to redesign and renew. Jones (1996) notes that research suggests that high performance schools are characterized by strong positive organizational cultures, strong cultures can be created, and schools can become more effective if they enact and achieve the right type of culture. According to Jones, values, attitudes, and norms all strongly influence a school culture, and values appear to be key indicators on the organizational health of schools.

The idea that a school not only has a culture but also a soul has recently appeared in the literature (Bolman & Deal, 1995; Goens, 1996). Goens suggests that schools have a deeper purpose than a profit margin and should be places of goodness that are imaginative, caring, idealistic, and creative. To create these types of schools, communities must make covenants that define the values the school stand for.
Assessing School Culture

Culture has historically been studied through ethnographic and case studies which have provided rich description but not allowed for generalization and compatibility (Ott, 1993). Recently however, several quantitative studies have been completed that attempt to evaluate aspects of school culture.

In her study, Ott (1993) reviewed the works of Braskamp and Maehr (1985), Daniel (1990), Quinn and Rohrbaugh (1981, 1983), and Sashkin and Sashkin (1990). These studies utilized the School Culture Assessment Questionnaire or the Competing Values Framework (Ott, 1993). Areas studied included measuring motivational issues related to school culture, relationship between culture motivation and achievement, and linking leadership behavior to school culture and job satisfaction and commitment.

Principal Leadership and Culture

The position of principal within schools has been present for a substantial period of American educational history. This section of the literature review looks at the role of principal management, the role of principal leadership, and the role of the principal as it relates to school culture.

Role of the Principal—Management

Scientific Management

Following the lead of the business world and its application of scientific management principles developed by Taylor (1947), the role of the principal was perceived primarily as a manager of people and resources. Luther Gulick identified the roles of the principal to include planning, organizing, staffing, directing, coordinating,
reporting, and budgeting (Sergiovanni, 1995b). In 1955, the American Association of School Administrators added stimulating staff and evaluating staff to Gulick’s initial list of responsibilities (Sergiovanni, 1995b).

The initial role of the principal was to manage the educational system. He/she was responsible for anything dealing with the efficient operation of the school. Little emphasis, or expectation, was given to being directly involved with the teaching and learning process.

**Transactional Leadership**

Burns (1978) introduced the concept of transactional leadership. Although titled as leadership, the concept of transactional leadership is actually managerial in nature. Transactional leadership focuses on basic and largely extrinsic motives and needs.

According to Sergiovanni (1995b), transactional leaders and followers exchange needs and services in order to accomplish independent objectives. He terms this as “leadership by bartering” (p. 31) with positive reinforcement given for good work, merit pay for increased performance, promotion for increased persistence, and a feeling of belonging for cooperation.

Duke and Leithwood (1994) and Leithwood (1996) described transactional leadership to consist of staffing, instructional support, monitoring of school activities, and a focus on community. Holland (1997) identified barriers to educational leadership being the management functions of the principal (e.g., lunchroom supervision, school discipline, building maintenance, union demands, bureaucratic paperwork, and threats of violence).
Role of the Principal—Leadership

An outgrowth of the effective schools movement was increasing the expectation for leadership from the principal. Leadership has been defined by many in the literature. Hanson (1996) defines leadership as the ability to get others to behave in a desired manner in order to successfully complete whatever the task. According to Bennis (1989), leadership is the creation of a human community held together by the work bond for a common purpose. Stogdill (1974) synthesized the various definitions of leadership into ten categories: (a) a focus of group processes, (b) a personality and its effects, (c) the art of inducing compliance, (d) the exercise of influence, (e) an act or behavior, (f) a form of persuasion, (g) an instrument of goal achievement, (h) an effect of interaction, (i) a differential role, and (j) the initiation of structure. The literature provided no concise, consistent definition of leadership. However, general consensus between various definitions included moving the organization in a desired direction.

Instructional Leadership

Directly from the effective schools movement came the concept of the principal serving as the instructional leader. Although titled leadership, many of the responsibilities with instructional leadership coincided closely with responsibilities within the realm of management.

Effective schools research offered little detail on what was included in instructional leadership but the mandate for strong instructional leadership from the principal became dominant (Avila, 1990). Consequently, a number of definitions and activities were developed under the auspices of instructional leadership.
A major component of instructional leadership was some form of directing the curriculum (Berlin, 1988; Cooper, 1989; Hansen & Smith, 1989; Kanpol & Weisz, 1990). Actual involvement in curriculum by the principal varied greatly from one situation to another.

Being present in the classroom and more formal evaluation of teachers also was characteristic of instructional leadership (Beck, 1987; Wenrich, 1990). Included as well were assisting in developing classroom climate (Short & Spencer, 1990) and adjusting teacher behavior (Tyler, 1989). Still others viewed instructional leadership as being present in the classroom and offering to correct papers, act as a teacher's aide, teach the class, and present duty release cards to teachers for professional development activities (Palaniuk, 1988).

The principal assuming the role of instructional leadership was not viewed as positive by all administrators and teachers. According to Ginsberg (1988a, 1988b), instructional leadership was an ill-defined, poorly researched concept with inadequate principal training and limits presented by master contract language. The new role of instructional leader regularly conflicted with the other management tasks of the principal (Cuban, 1986; Litchfield, 1986).

No common themes emerged from the literature on what instructional leadership really was. Examples varied from situation to situation with some being managerial in nature to others that actually had the principal providing leadership in the development and delivery of curriculum and regularly visiting and assisting classroom teachers in the teaching of students.
Transformational Leadership

According to Leithwood (1992, 1996), continued calls for reform and restructuring moved leadership from instructional to transformational. Transformative or transformational leadership was introduced by Burns (1978) and focuses on the higher-order, more intrinsic motives of people. In transformational leadership, leaders and followers unite in the pursuit of higher level goals that are common to both (Bass, 1998; Bass & Avolio, 1993). Followers and leaders have a commonality of purpose and want to move the school in new and better directions (Sergiovanni, 1995a).

Transformative school leaders must be able to balance a variety of roles, to move among them as needed, and to live and work with contradictions or ambiguities that acceptance of multiple roles naturally brings (Murphy & Louis, 1994). Leithwood, Begley, and Cousins (1992) used metaphor to highlight the difference between instructional leadership and transformational leadership. They referred to the instructional leader as "leading from the front or middle of the band" while the transformational leader as "leading from the back of the band" (p. 6).

The evolving body of literature on the transformational principal points to several different roles for the principal. Developing a shared vision is sighted by numerous authors as being a primary task of the building principal (Lashway, 1997; Sergiovanni, 1994; Whitaker & Moses, 1994). Fritz (1996) refers to the principal as the vision's chief instigator, promoter, and guardian.

According to Jantzi and Leithwood (1995, 1996), there are six dimensions of leadership practice within transformational leadership: (a) building school vision, (b)
establishing school goals, (c) providing intellectual stimulation, (d) offering individualized support, (e) modeling best practices and important organizational values, and (f) demonstrating high performance expectations. Leithwood et al. (1997) introduced the concept of distributive leadership by adding two more leadership practices: (a) creating a productive work culture, and (b) developing structures to foster participation in school decisions.

Sergiovanni (1995b) breaks down principal leadership into five different forces that fall under the auspices of transformational leadership. These forces and explanations follow.

1. Technical force. Included in this role as "maintenance engineers" are planning, time management, contingency leadership theories, organizational structures, organizing, coordinating, and scheduling.

2. Human force. This role as "human engineer" is concerned with human aspects of leadership such as support, encouragement, and professional growth opportunities for teachers and others.

3. Educational force. This "clinical practitioner" comes from expert knowledge and includes diagnosing educational problems, counseling teachers, developing curriculum, and providing appropriate supervision, evaluation, and staff development.

4. Symbolic force. The "chief" emphasized selective attention or modeling of important goals and behaviors, as well as touring the school, visiting classrooms, and seeking out and spending time with students.
5. Cultural force. The “high priest” seeks to define, strengthen, and articulate those important values, beliefs, and cultural traits that give the school its unique identity. He/she focuses on legacy building, socializing new members to the school, and reinforcing the myths, traditions, and beliefs of the school.

Within transformational leadership, other concepts of leadership have evolved or been created by authors and researchers. Servant leadership was introduced by Greenleaf (1977), with the premise being great leaders were first servants and their willingness to serve provided legitimacy to lead. As they serve, leaders reveal their commitment to shared organizational purposes and inspire trust and similar commitments in others (Greenleaf, 1977; Murphy & Louis, 1994; Sergiovanni, 1992). Servant leaders acknowledge that schools exist for and because of people, and therefore organizational and personal goals are not inherently contradictory. These leaders see service of their school and constituents within the school as the foundation of their work (Murphy & Louis, 1994).

Sergiovanni (1990) developed his value-added leadership concept under the umbrella of transformational leadership. Included in value-added leadership are nine points of emphasis: (a) leadership, (b) extraordinary performance investment, (c) providing symbols and enhancing meaning, (d) purposing, (e) enabling teachers and the school, (f) building an accountability system, (g) intrinsic motivation, (h) collegiality, and (i) leadership by outrage. According to Sergiovanni, forces within the school will focus in purpose if value-added leadership is utilized.
Another variation within transformation leadership is facilitative leadership. Murphy and Louis (1994) state,

Principals must find their authority in their personal, interpersonal, and professional competencies, not in formal positions; they must cultivate collegiality, cooperation, and shared communities among all with whom they work. . . . As we move toward the 21st century, principals must be able to forge partnerships and build strategic alliances with parents, with businesses, and with social service agencies. They must lead in efforts to coordinate the energy and work of all stakeholders so that all children in their schools are well served. (p. 15)

Facilitative leadership places the principal in the role of supporter, consensus builder, and coordinator, all under the title of leadership.

Through all of the literature on transformational leadership and its different variations, the constant was placing the principal in a position to lead by working with the other patrons of the school. Management functions remained important but the overall role of the principal went far beyond typical management activities. Within the role of transformational leader, the principal worked on collaboratively setting the vision, then proceeded to support and lead everything within the school in pursuit of making the vision a reality. He/she was also given the responsibility of developing, maintaining, improving, and/or changing the culture within his/her school.

The Principal and Culture

A question throughout time has been whether the culture of a school influences the principal or whether the principal influences the school. Current literature suggests both may be true. The variable in this study, however, is the leadership role, as perceived by the high school principal, on his/her influence on school culture. The influence of culture on the principal is not explored.
The literature points at several themes on how a principal influences school culture, beginning with vision within schools (Commission on the Restructuring of the American High School, 1996; Deal & Peterson, 1990). Vision is a compass that points the direction to be taken, inspires enthusiasm, and allows people to buy into and take part in the shaping of the way that will constitute the school’s mission (Sergiovanni, 1995b).

Sergiovanni goes on to say the fleshing out of this vision requires the building of a shared consensus about purposes and beliefs that creates a powerful force bonding people together around common themes. This compelling vision allows the principal to positively affect school culture.

Another area prevalent in the literature was combining the managerial role of the principal within the alignment of the school’s culture. Fullan and Miles (1992) state, “Changes in structure must go hand in hand with changes in the culture . . . Neglecting one or the other is a sure-fire recipe for failure” (p. 748).

Deal and Peterson (1990) indicate the principal can shape the daily routines of school life by attending to the school culture at the same time: (a) develop a vision what the school should be; (b) select staff members with corresponding values; (c) face conflict rather than avoid it; (d) set a consistent example of core values in daily routines; and (e) nurture traditions, rituals, ceremonies and symbols that reinforce the school’s culture.

Stolp and Smith (1995) noted when the culture and climate in a building are positive and supporting, teachers are more motivated to teach and students to learn. Schools are

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more likely to succeed at broad reform efforts when climate and culture are solid and positive.

The Commission on the Restructuring of the American High School (1996) broke the key elements for a principal in building school culture into four areas: (a) vision, (b) direction, (c) focus on student learning, and (d) fostering an atmosphere that encourages teachers to take risks.

Neither Deal and Peterson’s (1990) work or the work of the Commission on Restructuring the American High School (1996) provided a specific, step-by-step formula for principals to follow. Schools are different so consequently cultures are going to be different. The principal needs to understand the concepts necessary to impact culture, then must be astute enough to develop and implement strategies that fit the particular situation within that school.

According to Schweiker (1995), changes are more lasting when initiated by members of the immediate school culture than by those outside the school’s culture. Schein (1985) states, “There is a possibility under emphasized in leadership research that the only thing of real importance that leaders do is create and manage culture and that the unique talent of leaders is their ability to work with culture” (p. 2).

Peterson and Deal (1998) indicate that leaders sculpt cultures by reading the existing culture (its history and current condition), uncovering and articulating core values, and fashioning a positive context. They go on to identify ways in which leaders can shape culture. Leaders will, (a) communicate core values in what they say and do; (b) honor and recognize those who have worked to serve students and the purpose of the school; (c)
observe rituals and traditions to support the school’s heart and soul; (d) recognize heroes and heroines and the work these exemplars accomplish; (e) eloquently speak of the deeper mission of the school; (f) celebrate the accomplishments of the staff, the students, and the community; and (g) preserve the focus on students by recounting stories of success and achievement.

School Size and Culture

School size has been an issue of research for over seventy years in the United States. This section will review the literature on school size from the 1920s to the present, then look at the possible relationship between school size and culture within schools.

Early Research on School Size

The history of school size in the United States dates back to the advent of the one room schoolhouse. In 1930, there were over 128,000 school districts in the United States. Since that time, the move toward consolidation into larger school districts and schools has been great. Two concepts for building larger schools drove decisions, administrative and instructional (Howley, 1996). The administrative concept focused on issues of economics, namely that larger schools could use staff and other resources more efficiently. The instructional concept focused on the amount and quality of effective instruction and instructional offerings.

Early research on school size correlated with efficiency arguments being made in the industrial and corporate worlds. It was premised that larger schools could keep the cost per pupil at a more moderate level (Walberg, 1989). Others attempted to show per pupil
costs were actually higher on both ends of the continuum of size, with the result being a
U-shaped cost curve (Howley, 1997; McGuire, 1989). Most early studies used
curriculum offerings as a variable in assessing optimal school size (Stemnock, 1974).

In the 1960s, James Conant conducted research on comprehensive high schools
(Conant, 1967). Although his research found size only affecting the school’s ability to
offer a wide program of foreign languages and its ability to offer advance placement
courses, he concluded that larger high schools were superior. He described
comprehensive schools to be of optimal size with an enrollment between 750-2000
students. This research became the basis for a strong move toward larger high schools
(Fowler, 1992; McGuire, 1989).

Barker and Gump (1964) conducted a research study of high school students in
Kansas and found student participation in school activities, student satisfaction, number
of classes taken, and participation in social organizations to be superior in small high
schools to those in a large high school. Although conducted at approximately the same
time as Conant’s (1967) study, the work of Barker and Gump was not widely received or
referenced in decisions on school size.

Guthrie (1979) estimated that from 1930-1972, the number of schools decreased
from 262,000 to 91,000, due primarily to the elimination of the one-teacher schools. He
cites reasons for this move to include economic efficiency, fiscal equality, and the
provision of enhanced educational benefits for students. During this same period,
Guthrie indicates average school size increased from less than 100 to over 500 students,
with the average secondary school size to be over 1000 students. By the late 1980s, over one-third of high schools had enrollments over 750 students (Fowler, 1992).

**Recent Research on School Size**

Over the past seventy-five years, the number of larger high schools has increased dramatically. Roelke (1996), quoting statistics provided by the National Center for Educational Statistics (1995), indicated the sizes of public high schools in 1993-1994.

<table>
<thead>
<tr>
<th>Enrollment of high school</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100</td>
<td>1046</td>
<td>9.6</td>
</tr>
<tr>
<td>100-199</td>
<td>1025</td>
<td>9.4</td>
</tr>
<tr>
<td>200-299</td>
<td>839</td>
<td>7.7</td>
</tr>
<tr>
<td>300-399</td>
<td>747</td>
<td>6.9</td>
</tr>
<tr>
<td>400-999</td>
<td>3526</td>
<td>32.4</td>
</tr>
<tr>
<td>1000-1999</td>
<td>2980</td>
<td>27.3</td>
</tr>
<tr>
<td>Over 2000</td>
<td>739</td>
<td>6.8</td>
</tr>
</tbody>
</table>

As previously mentioned, the impetus toward larger high schools came from arguments centered on efficiency and the number of opportunities provided. It was believed that larger schools could be run more cost effectively and the opportunities provided to students, academic as well as in activities, were greater in larger schools.

Recently, the move toward larger high schools has drawn considerable criticism. Lee and Smith (1997) indicate that the "economy of scale" principle of cost effectiveness in schools has not worked as originally conceptualized. They cite increased costs for bureaucracy needed to run larger schools, transportation, and distributing materials to have been underestimated by the proponents of larger schools. They go further in recommending the optimal high school to have an enrollment of 600-900 students. In smaller schools than this, students learn less; those in larger high schools learn considerably less.
Howley (1997) indicated that, (a) very few before/after studies of consolidation exist, (b) consolidation does not appear to save money, (c) small schools appear to be more productive for students from lower socioeconomic levels, and (d) increasing school size does not reliably produce better curriculum. Raywid (1997) reviewed 103 studies dealing with school size and observed that many of them found student performance in small schools superior to that in larger schools and none found the reverse to be true. Lee and Smith (1995) suggested that most research on the effect of school size on student development has supported a shift toward smaller high schools. They also contend that school size, in and of itself, cannot be a major determinant of student success. Rather, school size can have only an indirect effect on students' learning and engagement and should not be viewed as a panacea or studied in isolation from other factors within and about schools.

School Size and School Culture

Very few studies have been conducted dealing with the direct relationship between school size and school culture. However, the body of literature is increasing with studies linking school size with postulates of effective practices within schools and with characteristics described earlier in this review of literature about school culture.

Conway (1994) indicates that it is easier to identify, teach, and reinforce purposes, personal loyalties, and common sentiments in private schools, which are approximately one-half the size of public schools. Swanson (1991) postulates that cultures most conducive to learning seem to be found in small organizations which are personal and where the prescriptions for learning are individualized.
Within concepts of school culture, small schools have a better chance of becoming communities of learners where all individuals associated with a school, including administrators, teachers, students, staff, parents, and citizens, are bound together through a deep sense of belonging and shared responsibilities (Black, 1996; Sergiovanni, 1996). According to Oxley (1989),

The great failing of large schools is that they create an unfavorable social climate for learning. When enrollment exceeds 500, teachers and administrators no longer know all the students by name; and at 1000, staff is unable to distinguish an intruder from a student. Research studies document that at-risk student suffers the consequences of large school size most. (p. 28)

Berlin and Cienkus (1989) indicate that people seem to thrive in situations where they have some control, personal influence, and efficacy.

Additional study has been conducted in other areas associated with school culture. Student attitudes toward school in general and toward particular aspects of school have shown small school size to be advantageous (Fowler, 1995; Howley, 1994). Students in small schools also have a much greater sense of belonging (Gregory, 1992; Stockard & Mayberry, 1992). Students participate at a higher level in extracurricular activities at small schools (Cotton, 1996; Fowler, 1995; Stockard & Mayberry, 1992). Student attendance also is higher in small schools and the number of dropouts in small schools is significantly fewer than in large schools (Fowler, 1995; Rutter, 1988). There also is less vandalism, aggressive behavior, theft, substance abuse, and gang participation in small schools (Gottfredson, 1985; Gregory, 1992; Rutter, 1988).

The literature is growing with studies supporting the move from larger to smaller high schools. Recommendations for optimal high school size range from 400-900,
without conclusive evidence on effectiveness or direct relation to school culture. The literature does infer an indirect relation of school size to elements of school culture.

Socioeconomic Level and School Culture

Very little literature exists on the relationship of socioeconomic level and school culture. An ERIC search on December 28, 1998, using school culture and socioeconomic level yielded 18 potential sources of information. Of the 18 potential sources, none dealt directly with the relationship of socioeconomic level and school culture. Using different descriptors in the ERIC search, such as climate instead of culture, did not disclose further studies. However, the literature reviewed dealing with school size does offer an indirect link to socioeconomic level and school culture.

A number of authors have postulated that smaller school size is an advantage for at-risk students, especially in an urban setting (Fowler, 1995; Howley, 1997; Lee & Smith, 1995). Inherit in this belief is that smaller schools provide a stronger sense of belonging for the students and that communal organizational structures facilitate this ownership feeling easier than bureaucratic models (Lee, Smith, & Croninger, 1997).

Others have demonstrated work on developing a particular type of school culture in order to increase academic achievement. Mugits (1997) described his work to transform the culture of his school where 75% of the student body qualified for free and reduced lunch. Spade, Columba, and Vanfossen (1997) found that smaller schools could influence the achievement of students even if the origins of the students they served were not conducive to achievement, including those schools comprised by predominantly disadvantaged students.
None of the above studies dealt directly in the relationship between socioeconomic level and school culture but rather made inference to characteristics described earlier in this chapter dealing with school culture. Ott (1993) found that although a relationship existed between socioeconomic level and rational goal culture, it was too small to be interpretable.

Competing Values Framework

The Competing Values Framework was developed by Quinn and Rohrbaugh (1981, 1983) and provides the theoretical and operational basis for this study. The model provides four ideal culture types as well as eight leadership styles that coordinate with the ideal culture types. The Competing Values Framework was developed from the work of Carl Jung (Ott, 1993).

According to Quinn (1988), organizations are often viewed in very static ways typically characterized by relatively stable, predictable patterns of action. Expectations are for organizations to be governed by, and products of, rational-deductive thinking. What exists in reality, however, are contradictory pressures from various sources within and outside of the organization. Master managers see their organizations as evolving, changing, and dynamic systems. They have the aptitude and ability to adapt to different perspectives. At times they may be very analytical and structured, while at other times they may be intuitive and flexible. If analyzed at one point in time, these managers may seem paradoxical, with their actions considered illogical and contradictory. However, when viewing the whole, these contradictory patterns come together in a fluid, almost artful way.
Managers develop through a transformational cycle as they attempt to move their organizations in desired directions (Quinn, 1988). In the initiation phase, managers move to a risk-taking position that requires a leap of faith. Failure is not referred to as a negative but rather as “false start, glitch, mess, or error” (p. 18). If a manager is not able to make the leap of faith toward new action, the cycle is broken and the individual will begin or continue to stagnate.

The second phase of the transformational cycle is the uncertainty phase. This occurs after the initial risk-taking action is initiated. It is at this point that a person teeters on success or failure as uncertainty, contradictions, and resistance mounts. Intuitive learning becomes more prevalent. The successful manager learns a tolerance for ambiguity and the engagement of contradictions through intuitive experimentation.

The transformational phase comes next. It is during this phase that managers are able to reframe. Rothenberg (1979) introduced the concept of Janusian thinking to describe the breakthroughs and innovations that occur when opposite extremes were brought together. During the transformational phase, the reframing process brings a synergistic integration of ideas, thoughts, and actions. It is during this period that oneness of purpose and efforts occurs, and that a cycle of excellence begins.

The final part of the transformational cycle is the routinization phase. It is during this period that the uncertainty and contradictions felt in phase two have disappeared. At this point, deductive thought processes again become useful. Complex, creative thought processes are not necessary. The change has been internalized by the manager and by his/her constituency.
It is from this base that the Competing Values Framework was developed to assist organizations in understanding and utilizing the seeming paradox present within the organization’s culture and the leader’s style of leadership. The Competing Values Framework was used by Cameron and Freeman in 1989 among colleges and universities within the United States (Cameron & Freeman, 1989). This study utilized institution size, institutional control, and the number of degrees offered, with responses from 334 institutions, and 3,406 individuals within those institutions, a 55% return rate. The study was conducted to overcome the limitations of the case study approach and the difficulties in assessing organizational culture and its relationship between and across different institutions. The study’s results supported the construct validity of the Competing Values Framework.

Using the same data as Cameron and Freeman (1989), Zammuto and Krakower (1989) assessed the cultural strengths of the study. Their results indicated that the patterns of culture types and other variables indicated a distinctive relationship. Zammuto and Krakower refined the construct validation of the Competing Values culture instrument.

Yeung, Brockbank, and Ulrich (1991) utilized the instrumentation presented within the Competing Values Framework to explore the impact of organizational culture on human resource practices and organizational performance. This study involved 91 firms and 1200 businesses, with a response rate of about 70%. Yeung et al. (1991) found that businesses were seldom characterized by one pure culture type and that specific culture profiles had a significant impact on organizational performance. They concluded that
“qualitative assessment of culture through case studies, intensive interviews, and in-depth historical analysis may be coupled with more generic, less specific, but more universal quantitative measures of culture” (p. 23).

Ott (1993) utilized the Competing Values Framework in her doctoral dissertation using elementary principals in the state of Iowa as subjects. This study is a replication of Ott’s earlier research design, but utilizing public high school principals in the state of Iowa as subjects.

**Ideal Culture Types**

The Competing Values Framework consists of four ideal culture types (Quinn, 1988) and is presented in Figure 5. Each quadrant is divided by a vertical and horizontal axis. The vertical axis is a continuum from control, characterized by centralization and integration, to flexibility, characterized by decentralization and differentiation. The horizontal axis ranges from internal focus, with an emphasis on maintenance of the sociotechnical system, to external focus, with a focus on competitive position within the overall system.

Each of the quadrants identifies an ideal culture type, including descriptors of the particular culture type. The group or human relations culture type focuses on human commitment. Human resources, training, cohesion, and morale are all valued within this quadrant. The developmental or open systems culture type emphasizes expansion and adaptation, and values adaptability, readiness, growth, resource acquisition, and external support. The rational goal culture type focuses on maximization of output, with emphasis given to productivity, efficiency, planning, and goal setting. The hierarchical or internal...
Figure 5. The Competing Values Framework—Culture.

Human Relations Model
(The Team)

Toward Development of Human Resources
- Concern
- Commitment
- Morale
- Discussion
- Participation
- Openness

Toward Maintenance of the Sociotechnical System
- Measurement
- Documentation
- Information Management
- Stability
- Control
- Continuity

Toward Decentralization, Differentiation
- Insight
- Innovation
- Adaptation
- External Support
- Resource Acquisition
- Growth

Toward Consolidation, Equilibrium
- Order
- Short Time Lines
- External Focus
- Accomplishment
- Productivity
- Profit/Impact

Open Systems Model
(The Adhocracy)

Toward Expansion, Transformation
- Pervasiveness
- Long Time Lines
- Internal Focus
- Goal Clarification
- Direction
- Decisiveness

Internal Process Model
(The Hierarchy)

Toward Centralization, Integration
- Predictability
- Order
- Continuity
- Growth

Toward Maximization of Output
- Accomplishment
- Productivity
- Profit/Impact

Rational Goal Model
(The Firm)


process culture type promotes consolidation and continuity, while emphasizing stability, control, information management, and communication. Further definition of the four ideal culture types was shared in the Definition of Terms section in chapter one.
It is the belief of Quinn (1988) that no organization operates totally within one culture quadrant. Rather, each organization has a dominant culture type, yet operates in all of the quadrants at some point.

**Leadership Roles**

According to Quinn (1988), within the four ideal culture quadrants certain leadership roles prevail. Each quadrant has two dominant leadership roles present. All leadership roles may be present to a degree, but two are considered primary. These leadership roles are shown in Figure 6.

Within the human relations model, the mentor and group facilitator leadership roles are prominent. The mentor role is characterized by showing consideration through caring and empathy. The group facilitator role facilitates interaction and is process-oriented.

The innovator and broker leadership roles are presented within the open systems quadrant. The innovator envisions change and is creative and clever. The broker acquires resources and is politically savvy.

Within the rational goal model, the director and producer leadership roles are utilized. The director leadership role focuses on providing structure through decisiveness and directives. The producer initiates action through an orientation toward tasks and work completed.

Monitor and coordinator leadership roles are utilized within the internal process model. The monitor collects information and is focused on being a technical expert. The coordinator maintains existing structures through his/her dependability and reliability.
Quinn (1988) again emphasizes no leader is limited to one or two leadership styles, but rather the leadership styles associated with each ideal culture type promote the characteristics of that particular culture. Successful managers are able to move from quadrant to quadrant, with appropriate leadership styles, and overcome the apparent paradoxes and contradictions presented.
The Competing Values Framework is a reliable, tested model to quantitatively assess
the relationship between leadership and culture. The Competing Values Framework:
Culture Instrument is presented as Appendix B. The alpha coefficients for reliability for
the instrument are, (a) “group culture, .84; (b) developmental culture, .81; (c) rational
goal culture, .78; and (d) hierarchical culture, .77” (Yeung et al., 1991, p. 31).

The Competing Values Framework: Leadership Instrument, presented as Appendix
D, also has been psychometrically tested. Its alpha coefficient scores for reliability are,
(a) “facilitator, .89; (b) mentor, .87; (c) innovator, .90; (d) broker, .85; (e) producer, .72;
(f) director, .79; (g) coordinator, .77; and (h) monitor, .73” (Quinn, 1988, pp. 176-177).

A more detailed explanation of the culture instrument and the leadership instrument
will be discussed further in chapter three.
CHAPTER III
DESIGN OF THE STUDY

The primary purpose of this study was to test causal models in determining perceptions of Iowa high school principals on the relationship of leadership, school size, and socioeconomic levels to school culture. A secondary purpose of this study was to review the authoritative literature on the relationship of leadership, school size, and socioeconomic levels to school culture.

The research question guiding this study was, "How do leadership roles, school size, and student socioeconomic levels relate to school culture in Iowa public high schools?"

The research question was accompanied by the following hypotheses.

1. Leadership roles assumed by high school principals in Iowa are significantly related to school culture types as defined below.
   a. Mentor and facilitator leadership roles are more related to group culture type than to developmental, rational goal, and hierarchical culture types.
   b. Innovator and broker leadership roles are more related to developmental culture type than to group, rational goal, and hierarchical culture types.
   c. Producer and director leadership roles are more related to rational goal culture type than to group, developmental, and hierarchical culture types.
   d. Monitor and coordinator leadership roles are more related to hierarchical culture type than to group, developmental, and rational goal culture types.

2. Small size schools are more likely to exhibit a strong relationship to group culture type and developmental culture type.

3. Medium size schools are more likely to exhibit a relationship with all four culture types, with no strong relationship to one culture type.
4. Large size schools are more likely to exhibit a strong relationship to hierarchical culture type and rational goal culture type.

5. The percentage of students on free/reduced lunch is inversely related to rational goal culture type.

The four culture types from the Competing Values Framework were the dependent variables. Included as dependent variables were group or human relations culture type, developmental or open systems culture type, rational goal culture type, and hierarchical or internal processes culture type.

Again from the Competing Values Framework, one independent variable was the eight leadership roles. These leadership roles included facilitator, mentor, innovator, broker, producer, director, coordinator, and monitor. In addition to leadership roles, socioeconomic level, as measured by percentage of students on free/reduced lunch, and building size were treated as independent variables.

Four causal models were tested and are presented in Figures 7, 8, 9, and 10. Figure 7 depicts the path model for group culture, with facilitator and mentor leadership roles, free/reduced lunch, and building size as independent variables. Figure 8 shows the path model for developmental culture, with innovator and broker leadership roles, free/reduced lunch, and building size as independent variables. Figure 9 depicts the path model for rational goal culture, with producer and director leadership roles, free/reduced lunch, and building size as independent variables. Figure 10 shows the path model for hierarchical culture, with coordinator and monitor leadership roles, free/reduced lunch,
and building size as independent variables. Survey methodology was utilized with Iowa high school principals in acquiring data.

**Figure 7.** Path model of group culture, with independent variables being facilitator leadership role, free/reduced lunch, building size, and mentor leadership role. Dependent variable is group culture.

```
Facilitator

Free/Reduced Lunch

Building Size

Mentor

Group Culture
```

**Figure 8.** Path model of developmental culture, with dependent variables being innovator leadership role, free/reduced lunch, building size, and broker leadership role. Dependent variable is developmental culture.

```
Innovator

Free/Reduced Lunch

Building Size

Broker

Developmental Culture
```
Figure 9. Path model of rational goal culture, with independent variables being producer leadership role, free/reduced lunch, building size, and director leadership role. Dependent variable is rational goal culture.

Figure 10. Path model of hierarchical culture, with independent variables being coordinator leadership role, free/reduced lunch, building size, and monitor leadership role. Dependent variable is hierarchical culture.
Subjects

Subjects in this study were high school principals within the state of Iowa. According to data gathered from the Iowa Department of Education, there were 368 high schools in the state of Iowa. High school was defined as any public school comprised of grades 9-12 or grades 10-12. High schools meeting this definition were further defined as large, medium, and small.

1. Large was defined as having building enrollment greater than or equal to 800 students. The total number fitting this description was 46.

2. Medium was defined as having building enrollment of 300 to 799 students. The total number in this classification was 102.

3. Small was defined as the schools with enrollment of less than 300 students. The total number in this classification was 220.

The division of large, medium, and small schools was a dilemma within the state of Iowa since a large number of high schools fall within the definition of small. However, following the literature on school size as closely as possible, the divisions were made as described.

Selection of Subjects

Enrollment figures for high schools within Iowa provided by the Iowa Department of Education indicated a range from 42 to 2272 students within the schools. The total number of large schools was 46 and total number of medium schools was 102. Because of this, all high schools classified as large and medium were used in the study. The
remaining schools were classified as small and numbered 220. A random sample of 102 small schools was utilized. A total of 250 participants were used in this study.

According to Cohen (1977), to confidently predict a correlation of .80 at the .30 level, a sample size of approximately 85 was needed. Ott (1993) had a return rate of 85.6% in her study. Based on Ott’s return rate, sample size for both medium and small size schools should be approximately 100. As mentioned in chapter one, the recommended sample size for large schools was not possible within Iowa, hence all available schools in this classification were surveyed. To achieve the recommended levels, all schools in the medium size classification were used. A random sample of small schools equal to the number of medium size schools was utilized.

**Instruments Utilized**

Survey instruments utilized in this study were provided by the Competing Values Framework developed by Quinn and Rohrbaugh (1981, 1983). Included were the Competing Values Framework: Culture Instrument and the Competing Values Framework: Leadership Instrument.

**Culture Instrument**

The Competing Values Framework: Culture Instrument is presented as Appendix B. The survey asked principal respondents to reply on the degree to which their school evidenced characteristics of the four ideal culture types. This was done utilizing a five point Likert scale with a range of 1 (low) to 5 (high). Alpha coefficients for reliability were, (a) “group culture, .84; (b) developmental culture, .81; (c) rational goal culture, .78;
and (d) hierarchical culture, .77” (Yeung et al., 1991, p. 31). These figures along with the scoring and item key are presented in Appendix C.

**Leadership Instrument**

The Competing Values Framework: Leadership Instrument is presented as Appendix D. This survey consisted of 32 items, four for each of the eight leadership roles within the Competing Values Framework. It utilized a seven point Likert scale with a range from 1 (almost never) to 7 (almost always).

The leadership roles and their alpha coefficient scores for reliability were, (a) “facilitator, .89; (b) mentor, .87; (c) innovator, .90; (d) broker, .85; (e) producer, .72; (f) director, .79; (g) coordinator, .77; and (h) monitor, .73” (Quinn, 1988, pp. 176-177). These figures, along with factor variance, item loading, and the item and scoring key are presented in Appendix E.

**Data Collection**

The Iowa Department of Education provided demographic information: age, gender, and race of all Iowa public high school principals; tenure in current principal position and total years of experience; highest degree held by high school principals; enrollment figures for all Iowa public high schools; ethnic make-up for each public high school; and percentage of students on free/reduced lunch in all public high schools. Leadership and culture data were collected from principal respondents through the Competing Values Framework survey instruments described earlier.
Procedures and Methodology

**Drawing the Sample**

All high schools defined by this study as large and medium were invited participants. Total number of large schools was 46. Total number of medium schools was 102.

All the remaining schools were classified as small schools and numbered 220. Each of these schools were entered into the computer and arranged alphabetically by building name, then assigned a number. A list of 102 random numbers was generated from the computer and matched with the school's number. The total number of invited participants in the study was 250.

**Preparing and Coding the Instruments**

The Competing Values Framework: Culture Instrument and the Competing Values Framework: Leadership Instrument were prepared for distribution to participants. These instruments are presented as Appendices B and D. Each participant school was assigned a number in order to ensure privacy. Both surveys were then numbered accordingly.

**Survey Packets**

Survey packets included the following: cover letter; supporting letter from Dr. Gaylord Tryon, Executive Director of the School Administrators of Iowa; copy of the Culture Instrument; copy of the Leadership Instrument; and self-addressed return mailing envelope. Two weeks after the initial mailing, postcard reminders were sent to non-respondents. One month after the initial mailing, a follow-up packet containing the same materials was sent to those not responding to the survey. Phone calls to principals of the large schools were made as needed in order to achieve a 100% return rate.
Treatment of the Data

All data were manually entered into SPSS, Version 9, statistical software program. Analyses was performed using descriptive statistics, correlation, multiple regression, and stepwise multiple regression. All demographic data were electronically transferred into the statistics software program.

To ensure that the random sample of small schools participating in the study was representative of the population, frequency distributions for the gender, age, and race of the principals, and percentage of students on free/reduced lunch were compared with comparable data for the entire small school population. Descriptive statistics, histograms, and frequency tables were then analyzed for normal distributions.

Path analysis was used for testing the four causal models. Pairwise correlation was performed to determine the degree the variables were associated with one another. Multiple regression was utilized to determine the contribution of the independent variables in explaining their relationship to the dependent culture variable. Stepwise multiple regression was used to further determine the relative contribution of the selected independent variables in explaining the variance of the dependent variable. The significance criterion for retaining path coefficients was $p < .05$. 

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CHAPTER IV
RESULTS

The primary purpose of this study was to develop and test causal models in determining perceptions of Iowa high school principals on the relationship of leadership, school size, and socioeconomic levels to school culture. A secondary purpose of this study was to review the authoritative literature on the relationship of leadership, school size, and socioeconomic level to school culture.

Based on the literature, this study utilized the theoretical framework presented in the Competing Values Framework (Quinn & Rohrbaugh, 1981, 1983). In the Competing Values Framework, four ideal culture types were presented: group, developmental, rational goal, and hierarchical. Within each of the ideal culture types, two leadership roles were presented. Within group were mentor and facilitator leadership roles; within developmental were innovator and broker leadership roles; within rational goal were producer and director leadership roles; and, within hierarchical were monitor and coordinator leadership roles.

Path analysis (Gall et al., 1996) models were developed to investigate the proposed relationship, or causal links, between leadership and culture, as defined within the Competing Values Framework. In addition to these variables, socioeconomic level, defined as percentage of students on free/reduced lunch, and school (building) size were added to each path model. In path analysis, the dependent variable is referred to as the endogenous or criterion variable, while the independent variables are referred to as exogenous or predictor variables (Gall et al., 1996). In each path, the endogenous
variable was culture type while the exogenous variables included leadership role, percentage of students on free/reduced lunch, and building size. The four path models are presented in Figures 11, 12, 13, and 14. Descriptive statistics, correlations, and path analysis using multiple regression and stepwise multiple regression were utilized to test the models.

Figure 11. Path model of group culture, with independent variables being facilitator leadership role, free/reduced lunch, building size, and mentor leadership role. Dependent variable is group culture.

```
Facilitator

Free/Reduced Lunch ➔

Building Size ➔ Group Culture

Mentor
```

Figure 12. Path model of developmental culture, with dependent variables being innovator leadership role, free/reduced lunch, building size, and broker leadership role. Dependent variable is developmental culture.

```
Innovator

Free/Reduced Lunch ➔ Developmental Culture

Building Size ➔

Broker
```
Figure 13. Path model of rational goal culture, with independent variables being producer leadership role, free/reduced lunch, building size, and director leadership role. Dependent variable is rational goal culture.

```
Producer
   Free/Reduced Lunch -> Rational Goal Culture
   Building Size
   Director
```

Figure 14. Path model of hierarchical culture, with independent variables being coordinator leadership role, free/reduced lunch, building size, and monitor leadership role. Dependent variable is hierarchical culture.

```
Coordinator
   Free/Reduced Lunch -> Hierarchical Culture
   Building Size
   Monitor
```
Subjects

Demographic data for the 1998-1999 school year were garnered from the Iowa Department of Education on all public high schools within the state of Iowa. For the purpose of this study, a high school was defined as a public school within Iowa comprised of grades 9-12 or grades 10-12. According to the Iowa Department of Education, there were 368 public high schools in Iowa. Demographic data were attained on the principals' age, gender, race, tenure in current position, total years of experience, and highest degree held. Also obtained were enrollment figures, ethnic make-up, and percentage of students on free/reduced lunch in all public high schools.

Enrollment figures for Iowa public high schools indicated a range of 42 to 2272 students. By definition in this study, small schools were defined as having an enrollment less than 300. Medium schools were defined as having enrollment of 300 to 799 and large schools having enrollment greater than or equal to 800 students. Using this definition of school size, there were 220 small schools, 102 medium schools, and 46 large schools in Iowa. A random sample of 102 small schools was utilized while all large and medium schools were included in the study. The total sample for this study was 250 public high schools in Iowa.

The Competing Values: Culture Instrument and The Competing Values: Leadership Instrument were mailed to the principals of all 250 participating schools in the study. The large school return was 46 of a possible 46 or 100%. The medium school return was 95 of a possible 102 or 93.1%. The small school return was 92 of a possible 102 or
90.2%. The overall return of the surveys was 233 of a possible 250 or 93.2%. There were no missing data on any of the items.

Preliminary Analysis

Preliminary analysis was done utilizing descriptive statistics. The sample in the study (N = 233) was compared to the overall population (N = 368) on the following variables: age, gender, race, tenure in current position, total experience, and highest degree held of Iowa public high school principals; and, ethnic make-up and percentage of students on free/reduced lunch in each public high school. It was concluded that the sample population was very representative of the overall population. Results of these descriptive statistics and comparisons are presented in Appendix F.

Data Analysis

The research question guiding this study was, "How do leadership roles, school size, and student socioeconomic levels relate to school culture in Iowa public high schools?" The following hypotheses were developed from the research question.

1. Leadership roles assumed by the high school principals in Iowa are significantly related to school culture types as defined below.

a. Mentor and facilitator leadership roles are more related to group culture type than to developmental, rational goal, and hierarchical culture types.

b. Innovator and broker leadership roles are more related to developmental culture type than to group, rational goal, and hierarchical culture types.

   c. Producer and director leadership roles are more related to rational goal culture type than to group, developmental, and hierarchical culture types.
d. Monitor and coordinator leadership roles are more related to hierarchical culture type than to group, developmental, and rational goal culture types.

2. Small size schools are more likely to exhibit a strong relationship to group culture type and developmental culture type.

3. Medium size schools are more likely to exhibit a relationship with all four culture types, with no strong relationship to one culture type.

4. Large size schools are more likely to exhibit a strong relationship to hierarchical culture type and rational goal culture type.

5. The percentage of students on free/reduced lunch is inversely related to rational goal culture type.

This section presents the results of the study utilizing descriptive statistics, correlations, and path analysis using multiple regression and stepwise multiple regression.

Descriptive Statistics

The Competing Values: Culture Instrument contained a total of 12 statements with each culture type represented by three of the statements. Responses on the individual survey items were a Likert-type scale of 1 (low) to 5 (high). The Competing Values: Culture Instrument is presented as Appendix B. The Competing Values: Leadership Instrument consisted of 32 statements with each leadership role represented by four of the statements. Responses on the individual survey items were a Likert-type scale of 1 (almost never) to 7 (almost always). The Competing Values: Leadership Instrument is presented as Appendix D. Data on enrollment figures and free/reduced lunch were provided by the Iowa Department of Education.
The ratings for the specific items on each of the culture types and leadership roles were added together to create a score for each culture type and leadership role. Means and standard deviations were computed for each culture type and leadership role. In addition, means and standard deviations were computed for building size (enrollment) and percentage of students on free/reduced lunch. This was done for the total sample (N = 233), shown in Table 1; small school sample (n = 92), shown in Table 2; medium size schools (n = 95), shown in Table 3; and large size schools (n = 46), shown in Table 4.

Correlations

Correlations among all variables are presented in Tables 5, 6, 7, 8 and 9. Table 5 includes all returned surveys in the project (N = 233). Table 6 includes all returned surveys from schools in the small school sample (n = 92). Table 7 includes all returned surveys from the schools in the medium size classification (n = 95). Table 8 includes all returned surveys from schools in the large size classification (n = 46). Table 9 presents the Pearson correlation coefficient for all the path variables for the total population, schools in the small school sample, medium size schools, and large size schools. The reader is reminded that effect sizes presented in Table 9 are listed only for those variables statistically significant at the p < .05 level.

The analysis of statistical power was guided by the literature on effect size. It is generally accepted that the correlation (r) corresponding to small effect size is .10, .30 for medium effect size, and .50 for large effect size (Cohen, 1977; Cohen & Cohen, 1983). Description of results are presented for the total sample, small school sample, medium size schools, and large size schools.
Table 1

**Means (M) and Standard Deviations (SD) for Path Variables—Total Sample (N = 233)**

<table>
<thead>
<tr>
<th>Culture Type Variables</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>1. Group Culture Type</td>
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<td>2. Developmental Culture Type</td>
<td>9.83</td>
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<td>10.20</td>
<td>1.79</td>
</tr>
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<td>4. Rational Goal Culture Type</td>
<td>11.06</td>
<td>1.76</td>
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</table>

<table>
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<tr>
<th>Leadership Role Variables</th>
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<th>SD</th>
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<tbody>
<tr>
<td>1. Innovator Leadership Role</td>
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</tr>
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<td>2. Broker Leadership Role</td>
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</tr>
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<td>3. Producer Leadership Role</td>
<td>20.64</td>
<td>2.91</td>
</tr>
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<td>4. Director Leadership Role</td>
<td>21.13</td>
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<td>5. Coordinator Leadership Role</td>
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<td>7. Facilitator Leadership Role</td>
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<td>8. Mentor Leadership Role</td>
<td>23.31</td>
<td>3.06</td>
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<th>Descriptive Variables</th>
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<td>1. Building Size (Enrollment)</td>
<td>528.51</td>
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<td>2. Free/Reduced Lunch %</td>
<td>20.37</td>
<td>9.45</td>
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Table 2

Means (M) and Standard Deviations (SD) for Path Variables—Small School Sample (n = 92)

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<th>SD</th>
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<td>2. Developmental Culture Type</td>
<td>9.16</td>
<td>2.19</td>
</tr>
<tr>
<td>3. Hierarchical Culture Type</td>
<td>10.29</td>
<td>1.52</td>
</tr>
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<td>4. Rational Goal Culture Type</td>
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<td>1.80</td>
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<tr>
<th>Leadership Role Variables</th>
<th>M</th>
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<tbody>
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<td>1. Innovator Leadership Role</td>
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<td>2. Broker Leadership Role</td>
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<td>3. Producer Leadership Role</td>
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<td>4. Director Leadership Role</td>
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<td>5. Coordinator Leadership Role</td>
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<td>8. Mentor Leadership Role</td>
<td>23.14</td>
<td>2.90</td>
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<td>1. Building Size (Enrollment)</td>
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<td>2. Free/Reduced Lunch %</td>
<td>23.85</td>
<td>10.16</td>
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Table 3

**Means (M) and Standard Deviations (SD) for Path Variables—Medium Size Schools (n = 95)**

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<th>M</th>
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<tr>
<th>Leadership Role Variables</th>
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<tr>
<td>1. Innovator Leadership Role</td>
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<td>2. Broker Leadership Role</td>
<td>19.62</td>
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<td>3. Producer Leadership Role</td>
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<td>2. Free/Reduced Lunch %</td>
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<td>6.47</td>
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Table 4

Means (M) and Standard Deviations (SD) for Path Variables—Large Size Schools (n = 46)

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<th>Culture Type Variables</th>
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<td>1. Group Culture Type</td>
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<td>2. Developmental Culture Type</td>
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<td>3. Hierarchical Culture Type</td>
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<td>4. Rational Goal Culture Type</td>
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<td>1. Innovator Leadership Role</td>
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<td>8. Mentor Leadership Role</td>
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Total Sample Population (N = 233)

Each of the leadership role variables in the path models were statistically significant at the $p < .01$ level to the predicted culture type. As shown in Table 9, in group culture type, both mentor and facilitator leadership roles had small effect sizes. In developmental culture type, innovator had a medium effect size while broker had a small effect size. Within the rational goal culture type, producer had a medium effect size while director had a small effect size. In hierarchical culture type, both monitor and coordinator had medium effect sizes. Building size was statistically significant at the $p < .01$ level only in the developmental culture type, with a small effect size. Free/reduced lunch was not statistically significant in any of the four culture types.

Small School Sample (n = 92)

Leadership roles within the small school classification were not consistently correlated with the model's prescribed culture types. Mentor and facilitator were not statistically significant to group culture type. In developmental culture type, innovator was statistically significant at the $p < .01$ level with a medium effect size. However, broker was not statistically significant. Within rational goal culture type, producer was statistically significant at the $p < .01$ level with a medium effect size, but director was not statistically significant. In hierarchical culture type, coordinator was statistically significant at the $p < .05$ level with a small effect size, but monitor was not. Building size and free/reduced lunch were not statistically significant to any of the four culture types.
Medium Size Schools (n = 95)

In group culture type, facilitator was statistically significant at the $p < .05$ level and mentor at the $p < .01$ level. Both had small effect sizes. In developmental culture type, innovator was statistically significant at the $p < .01$ level with a medium effect size. Broker was statistically significant at the $p < .05$ level with a small effect size. In rational goal culture type, producer was statistically significant at the $p < .01$ level with a medium effect size, while director was not statistically significant. In hierarchical culture type, both coordinator and monitor were statistically significant at the $p < .01$ level with small and medium effect sizes respectively. Building size was not statistically significant to any of the culture types while free/reduced lunch was statistically significant at the $p < .05$ level only to rational goal culture type. This relationship had a medium effect size and represented an inverse relationship.

Large Size Schools (n = 46)

Within group culture type, both mentor and facilitator were statistically significant at the $p < .05$ level with medium effect sizes. Innovator and broker were not statistically significant to developmental culture type. Within rational goal, both producer and director were statistically significant at the $p < .01$ level with large effect sizes. Monitor and coordinator were statistically significant to hierarchical culture type at the $p < .01$ level with large effect sizes. Building size and free/reduced lunch were not statistically significant to any of the culture types.
Table 5

Correlations Among Variables--Total Sample (N = 233)

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Note. * Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2 tailed).
Table 6

Correlations Among Variables--Small School Sample (n = 92)

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Note. * Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2 tailed).
Table 7

Correlations Among Variables--Medium Size Schools (n = 95)

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Note. * Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2 tailed).
Table 8

Correlations Among Variables--Large Size Schools (n = 46)

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Note. * Correlation is significant at the 0.05 level (2 tailed). ** Correlation is significant at the 0.01 level (2 tailed).
Table 9

Pearson Correlation Coefficients for Path Variables

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<th>Medium (n = 95)</th>
<th>Large (n = 46)</th>
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<td>4. Director</td>
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<td>.51 (l)</td>
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<td>4. Monitor</td>
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<td>.17</td>
<td>.45 (m)</td>
<td>.44 (m)</td>
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</table>

**Note.** Effect sizes are listed as (s) for small, (m) for medium, and (l) for large. Please note that effect sizes are listed only for those variables meeting the criteria at the p < .05 levels.
Within all of the size classifications, numerous statistically significant relationships existed between leadership roles and culture types. This study treated the four culture types separately as dependent variables. However the origin of all four were from a common theoretical framework. The results were not surprising.

In the total population, a statistically significant relationship existed between building size and free/reduced lunch \( (r = -0.14) \) at the \( p < 0.05 \) level. In the small school sample, a statistically significant relationship between building size and free/reduced lunch \( (r = 0.34) \) was found at the \( p < 0.01 \) level. This study was designed as a recursive model (Gall et al., 1996). A recursive model considers only unidirectional causal relationships and is denoted in path analysis by a line with an open-ended arrow pointing from the independent variable to the dependent variable. A nonrecursive model would be needed to test hypotheses involving reciprocal relationships. Hence, no attempt was made in this study to explain relationships between the various independent variables as this fell outside the purpose and parameters of the study. Suggestions for future research, including the use of a nonrecursive research design, are made in chapter five.

**Multiple Regression Analysis**

To generate appropriate statistics for the path models presented on pages 71 and 72, multiple regression was executed. In this study, the dependent variable was culture type (group, developmental, rational goal, and hierarchical). Independent variables included two designated leadership roles (facilitator and mentor with group, innovator and broker with developmental, producer and director with rational goal, and coordinator and monitor with hierarchical), percentage of students on free/reduced lunch in the high
school, and building size. It should be noted that in this statistical sequence all variables entered the multiple regression equation at the same time.

Multiple regression statistics were first generated for the total sample population. These results are presented in Table 10. Next, the multiple regression sequence was completed utilizing the small school sample. These results are presented in Table 11. The process was then done for the medium size schools. These results are presented in Table 12. The final multiple regression test was conducted using the large size schools. These results are presented in Table 13.

The purpose of conducting the multiple regression tests was to ascertain the cumulative contribution of the independent variables in explaining their relationship to the culture type. Comments on the statistical findings of these tests are found in the last section of chapter four and in chapter five. The four models with beta weights (b), p values, and multiple Rs are presented for all variables in Figures 15 through 30. Figures 15-18 are for the total sample; Figures 19-22 for the small school sample; Figures 23-26 for medium size schools; and Figures 27-30 for large size schools. It should be noted that these results are the same information presented in Tables 10, 11, 12, and 13. The reader is reminded to reference the path models for group culture type (Figure 11 on page 71); developmental culture type (Figure 12 on page 71); rational goal culture type (Figure 13 on page 72); and hierarchical culture type (Figure 14 on page 72).

Analyses of the multiple regression results begin on page 102 following Tables 10-13 and Figures 15-30. All results are given for the total sample, small school sample, medium size schools, and large size schools.
Table 10

Multiple Regression Statistics—Total Sample (N = 233)

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**Multiple Regression Statistics—Large Size Schools (n = 46)**

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<td>Building Size</td>
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<td>Monitor</td>
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<td>.10</td>
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Figure 15. Path model with multiple regression statistics for group culture type—Total sample population

- Facilitator: b = .17, p = .05
- F/R Lunch: b = -.04, p = .54
- Building Size: b = -.02, p = .82
- Mentor: b = .12, p = .17

Group: R = .26, p < .01

Figure 16. Path model with multiple regression statistics for developmental culture type—Total sample population

- Innovator: b = .37, p < .01
- F/R Lunch: b = .01, p = .91
- Building Size: b = .13, p = .05
- Broker: b = -.02, p = .73

Developmental: R = .40, p < .01
Figure 17. Path model with multiple regression statistics for rational goal culture type—Total sample population

Producer
  b = .52
  p < .01

F/R Lunch
  b = -.10
  p = .09

Building Size
  b = -.06
  p = .33

Director
  b = -.11
  p = .19

Rational Goal
  R = .45
  p < .01

Figure 18. Path model with multiple regression statistics for hierarchical culture type—Total sample population

Coordinator
  b = .18
  p < .01

F/R Lunch
  b = -.07
  p = .24

Building Size
  b = -.12
  p = .05

Monitor
  b = .26
  p < .01

Hierarchical
  R = .40
  p < .01

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Figure 19. Path model with multiple regression statistics for group culture type—Small school sample

Facilitator
   b = .22
   p = .09

F/R Lunch
   b = -.10
   p = .38

Building Size
   b = -.15
   p = .20

Mentor
   b = .02
   p = .88

Group
   R = .24
   p < .26

Figure 20. Path model with multiple regression statistics for developmental culture type—Small school sample

Innovator
   b = .38
   p < .01

F/R Lunch
   b = .06
   p = .56

Building Size
   b = -.09
   p = .43

Mentor
   b = -.01
   p = .92

Developmental
   R = .39
   p < .01
Figure 21. Path model with multiple regression statistics for rational goal culture type—Small school sample

Producer
b = .36
p = .02

F/R Lunch
b = -.01
p = .98

Building Size
b = -.07
p = .53

Director
b = -.08
p = .61

Rational Goal
R = .31
p < .07

Figure 22. Path model with multiple regression statistics for hierarchical culture type—Small school sample

Coordinator
b = .20
p = .09

F/R Lunch
b = -.06
p = .61

Building Size
b = .10
p = .39

Mentor
b = .08
p = .49

Hierarchical
R = .28
p < .13
Figure 23. Path model with multiple regression statistics for group culture type—Medium size schools

- **Facilitator**
  - $b = .12$
  - $p = .39$

- **F/R Lunch**
  - $b = -.18$
  - $p = .09$

- **Building Size**
  - $b = -.02$
  - $p = .83$

- **Mentor**
  - $b = .18$
  - $p = .18$

![Path model](diagram)

- **Group**
  - $R = .34$
  - $p < .03$

Figure 24. Path model with multiple regression statistics for developmental culture type—Medium size schools

- **Innovator**
  - $b = .36$
  - $p < .01$

- **F/R Lunch**
  - $b = -.02$
  - $p = .86$

- **Building Size**
  - $b = -.02$
  - $p = .83$

- **Mentor**
  - $b = .07$
  - $p = .53$

![Path model](diagram)

- **Developmental**
  - $R = .40$
  - $p < .01$
Figure 25. Path model with multiple regression statistics for rational goal culture type--Medium size schools

Producer
  $b = .65$
  $p < .01$

F/R Lunch
  $b = -.17$
  $p = .07$

Building Size
  $b = -.09$
  $p = .30$

Director
  $b = -.32$
  $p < .01$

Rational Goal
  $R = .54$
  $p < .01$

Figure 26. Path model with multiple regression statistics for hierarchical culture type--Medium size schools

Coordinator
  $b = .10$
  $p = .35$

F/R Lunch
  $b = .03$
  $p = .75$

Building Size
  $b = -.03$
  $p = .76$

Mentor
  $b = .41$
  $p < .01$

Hierarchical
  $R = .46$
  $p < .01$
Figure 27. Path model with multiple regression statistics for group culture type—Large size schools

Facilitator
  \( b = .26 \)
  \( p = .23 \)

F/R Lunch
  \( b = .10 \)
  \( p = .51 \)

Building Size
  \( b = -.07 \)
  \( p = .64 \)

Mentor
  \( b = .17 \)
  \( p = .43 \)

Group
  \( R = .41 \)
  \( p < .11 \)

Figure 28. Path model with multiple regression statistics for developmental culture type—Large size schools

Innovator
  \( b = .26 \)
  \( p = .10 \)

F/R Lunch
  \( b = .01 \)
  \( p = .98 \)

Building Size
  \( b = -.11 \)
  \( p = .47 \)

Mentor
  \( b = -.26 \)
  \( p = .11 \)

Developmental
  \( R = .33 \)
  \( p < .32 \)
Figure 29. Path model with multiple regression statistics for rational goal culture type--Large size schools

Producer
\[ b = .45 \]
\[ p = .02 \]

F/R Lunch
\[ b = -.12 \]
\[ p = .33 \]

Building Size
\[ b = .05 \]
\[ p = .72 \]

Director
\[ b = .17 \]
\[ p = .35 \]

Rational Goal
\[ R = .62 \]
\[ p < .01 \]

Figure 30. Path model with multiple regression statistics for hierarchical culture type--Large size schools

Coordinator
\[ b = .22 \]
\[ p = .22 \]

F/R Lunch
\[ b = -.12 \]
\[ p = .38 \]

Building Size
\[ b = .08 \]
\[ p = .57 \]

Mentor
\[ b = .30 \]
\[ p = .10 \]

Hierarchical
\[ R = .49 \]
\[ p < .02 \]
Total Sample

With the total population, the multiple correlations (R) were all statistically significant with p < .01, however, the beta weights (b) were not all statistically significant. In group culture type, only facilitator was statistically significant, while in developmental culture type, innovator and building size were statistically significant. Only producer was statistically significant within rational goal culture type. Within hierarchical culture type, coordinator, building size, and monitor were statistically significant.

Small School Sample

Results from the small school sample were varied. Only in developmental culture type was the multiple correlation statistically significant. Within developmental culture type, only innovator was statistically significant.

Medium Size Schools

All models within the medium size schools had statistically significant multiple correlations. Beta weights varied considerably. Innovator was statistically significant in developmental culture type, as were producer and director in rational goal culture type. Monitor was also statistically significant within hierarchical culture type. Rational goal and hierarchical culture types both had significant multiple correlations. However in the beta weights, only producer within rational goal culture type was significant.

Large Size Schools

Within large size schools, only rational goal and hierarchical had multiple correlations that were statistically significant. In rational goal, producer was statistically
significant, while coordinator or mentor were not statistically significant within hierarchical.

**Stepwise Multiple Regression Analysis**

In attempting to further ascertain the contribution of the independent variables in explaining variance of the dependent variable, stepwise multiple regression was utilized. In stepwise multiple regression, the independent variable that contributes most to the variance of the dependent variable enters the regression first. Subsequent variables are entered in order of highest contribution to the variance of the dependent variable. If a variable does not meet the entrance requirements (F to enter ≤ .05), it is excluded from the equation.

The results for stepwise multiple regression are presented in Figures 31 through 44. Figures 31, 32, 33, and 34 represent the simplest path models for the total sample population (N = 233). Figures 35, 36, and 37 are the simplest path models for the small school sample (n = 92). Please note that no path model existed for group culture type in the small school sample. Figures 38, 39, 40, and 41 represent the simplest path models for medium size schools (n = 95). Figures 42, 43, and 44 are the simplest path models for large size schools (n = 46). Please note that no path model existed for developmental culture type in the large size schools. Discussion of the results of stepwise multiple regression follows Figures 31-44 and begin on page 108.
Figure 31. Stepwise multiple regression statistics for the simplest path model of group culture type—Total sample

Facilitator $b = .25 **$ → Group $R = .25 **$

Figure 32. Stepwise multiple regression statistics for the simplest path model of developmental culture type—Total sample

Innovator $b = .35 **$

Building Size $b = .13 *$

Developmental $R = .40 **$

Figure 33. Stepwise multiple regression statistics for the simplest path model of rational goal culture type—Total sample

Producer $b = .43 **$

Rational Goal $R = .43 **$

Figure 34. Stepwise multiple regression statistics for the simplest path model of hierarchical culture type—Total sample

Coordinator $b = .20 **$

Monitor $b = .24 *$

Hierarchical $R = .38 *$

Note. * indicates $p < .05$; ** indicates $p < .01$. 

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Figure 35. Stepwise multiple regression statistics for the simplest path model of developmental culture type—Small school sample

Innovator \[ b = .36 \] \* \rightarrow \text{Developmental} \[ R = .36 \] \*

Figure 36. Stepwise multiple regression statistics for the simplest path model of rational goal culture type—Small school sample

Producer \[ b = .30 \] ** \rightarrow \text{Rational Goal} \[ R = .30 \] **

Figure 37. Stepwise multiple regression statistics for the simplest path model of hierarchical culture type—Total sample

Coordinator \[ b = .24 \] * \rightarrow \text{Hierarchical} \[ R = .24 \] *

Note. * indicates \( p < .05 \); ** indicates \( p < .01 \).
Figure 38. Stepwise multiple regression statistics for the simplest path model of group culture type—Medium size schools

Mentor \[ \rightarrow \text{Group} \]
\[ b = .27^{**} \]
\[ R = .27^{**} \]

Figure 39. Stepwise multiple regression statistics for the simplest path model of developmental culture type—Medium size schools

Innovator \[ \rightarrow \text{Developmental} \]
\[ b = .39^{**} \]
\[ R = .39^{**} \]

Figure 40. Stepwise multiple regression statistics for the simplest path model of rational goal culture type—Medium size schools

Producer \[ \rightarrow \text{Rational Goal} \]
\[ b = .66^{**} \]
Director
\[ b = -.29^{*} \]

Figure 41. Stepwise multiple regression statistics for the simplest path model of hierarchical culture type—Medium size schools

Monitor \[ \rightarrow \text{Hierarchical} \]
\[ b = .45^{**} \]

Note. * indicates \( p < .05; ** \) indicates \( p < .01 \).
**Figure 42.** Stepwise multiple regression statistics for the simplest path model of group culture type—Large size schools

Mentor $\rightarrow$ Group Culture  
$b = .36 \, **$  
$R = .36 \, **$

**Figure 43.** Stepwise multiple regression statistics for the simplest path model of rational goal culture type—Small school sample

Producer $\rightarrow$ Rational Goal  
$b = .59 \, **$  
$R = .59 \, **$

**Figure 44.** Stepwise multiple regression statistics for the simplest path model of hierarchical culture type—Large size schools

Monitor $\rightarrow$ Hierarchical  
$b = .44 \, **$  
$R = .44 \, **$

**Note.** * indicates $p < .05$; ** indicates $p < .01$. 

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**Total Sample**

Facilitator and mentor were statistically significant within group culture type in correlational analysis. Only facilitator passed the entrance criteria for stepwise multiple regression. Although mentor was a statistically significant contributor in correlational analysis, its beta weight at the entry stage was not statistically significant. Innovator, building size, and broker were all statistically significant to developmental culture type in correlational analysis. In stepwise multiple regression, innovator entered the equation first followed by building size, moving the multiple R from .38 to .40. Broker did not meet entrance requirements hence its contribution was not statistically significant. In rational goal culture type, both producer and director were statistically significant in correlational analysis. Only producer met the entrance requirements for the stepwise multiple regression equation. The beta weight of director was not statistically significant. In hierarchical culture type, both coordinator and monitor were statistically significant in correlational analysis. Monitor entered the stepwise multiple regression equation first, followed by coordinator, which moved the multiple R from .33 to .38.

**Small School Sample**

In group culture type, no variable was statistically significant in correlational analysis hence no variable entered the stepwise multiple regression equation. In developmental culture type, innovator was statistically significant in correlational analysis and was the only variable to enter the stepwise multiple regression equation. Producer was the only variable in rational goal culture type to be statistically significant in correlational analysis and was the only variable to enter the stepwise multiple
regression equation. In hierarchical culture type, only coordinator was statistically significant and entered stepwise multiple regression.

Medium Size Schools

In group culture type, facilitator and mentor were statistically significant in correlational analysis. However, only mentor entered the stepwise multiple regression equation. The beta weight of facilitator was not statistically significant and was excluded from stepwise multiple regression. In developmental culture type, both innovator and broker were statistically significant in correlational analysis. However, only innovator entered the stepwise multiple regression equation. The beta weight of broker was not statistically significant. In rational goal culture type, producer and free/reduced lunch were statistically significant in correlational analysis. In stepwise multiple regression, producer then director entered the equation, which changed the multiple R from .46 to .51. Free/reduced lunch was excluded from the multiple regression equation. In hierarchical culture type, coordinator and monitor were statistically significant in correlational analysis. Only monitor entered the stepwise multiple regression equation. The beta weight of coordinator was not statistically significant as it was excluded from the stepwise multiple regression equation.

Large Size Schools

In group culture type, facilitator and mentor were statistically significant in correlational analysis. However, only mentor entered the stepwise multiple regression equation. The beta weight of facilitator was not statistically significant and was excluded from stepwise multiple regression. In developmental culture type, no variables were
statistically significant in correlational analysis hence no variables entered the stepwise multiple regression equation. In rational goal culture type, producer and director were statistically significant in correlational analysis. Only producer entered the stepwise multiple regression equation. The beta weight of director was not statistically significant. In hierarchical culture type, coordinator and monitor were statistically significant in correlational analysis. Only monitor entered stepwise multiple regression. The beta weight of coordinator was not statistically significant.

Statistical Findings in Support/Non-Support of the Hypotheses

The research question guiding this study was, How do leadership roles, school size, and student socioeconomic levels relate to school culture in Iowa public high schools? Hypotheses were developed from the research question.

Hypothesis One

The first hypothesis predicted a relationship between culture types and leadership roles, as defined by Quinn and Rohrbaugh (1981, 1983). Included were, (a) facilitator and mentor leadership roles related to group culture type, (b) innovator and broker leadership roles related to developmental culture type, (c) producer and director leadership roles related to rational goal culture type, and (d) coordinator and monitor leadership roles related to hierarchical culture type. Findings are presented for the total population, small school sample, medium size schools, and large size schools.

Total Population

Correlational results supported the first hypothesis when using the total sample population. This was to be expected based on previous work with the Competing Values
Framework. Results of multiple regression also supported the first hypothesis within the total sample population at varying levels. The multiple correlations were statistically significant in all four culture types. Within group, developmental and rational goal, one leadership role was statistically significant. Only in hierarchical culture type was there a statistically significant beta weight by both leadership roles. This was not unexpected since there was a statistically significant correlation between the two leadership roles within each culture type. Further, both leadership roles were designed within the Competing Values Framework to lead toward a common leadership style. Based on results of stepwise multiple regression, the simplest path model for group, developmental and rational goal culture types included only one leadership role. Within hierarchical, both leadership roles were retained in the simplest path model.

Small School Sample

The first hypothesis was partially supported by the findings of this study when using the small school sample. In group culture, neither leadership role correlated at a statistically significant level, while in developmental, rational goal, and hierarchical, only one leadership role was statistically significant in each. The results within group culture were not expected, did not follow the theoretical model presented in the Competing Values Framework, and did not support the hypothesis. The first hypothesis was supported in developmental, rational goal, and hierarchical culture types. In multiple regression, only in developmental culture type was the multiple correlation statistically significant. No significant beta weights were found in group and hierarchical culture types. Statistically significant beta weights were found for one leadership role in
developmental and rational goal culture types. Results of stepwise multiple regression indicated the simplest path model for developmental, rational goal, and hierarchical culture types to include only one leadership role in each. Again, this was not surprising since a statistically significant correlation existed between each of the leadership roles within a culture type.

**Medium Size Schools**

Within the medium size school classification, the first hypothesis was supported. Both leadership roles were statistically significant in correlational analysis with group, developmental, and hierarchical culture types. Within rational goal culture type, only producer was correlated at a statistically significant level. Results of multiple regression tests showed no statistically significant relationship between facilitator and mentor leadership roles to group culture. In developmental culture type, only innovator was statistically significant, while in rational goal, both producer and director were statistically significant. In hierarchical, only monitor was statistically significant. The multiple correlations were statistically significant for all four culture types. Results of stepwise multiple regression showed the simplest path model to include only one leadership role in each culture type.

**Large Size Schools**

Within the large size classification, correlational analysis supported the first hypothesis within group, rational goal, and hierarchical culture types. However, neither leadership role in developmental culture type was statistically significant. The results within developmental culture type were not expected, did not follow the theoretical
model presented in the Competing Values Framework, and did not support the hypothesis. The first hypothesis was supported in group, rational goal, and hierarchical culture types. Multiple regression indicated no statistically significant beta weights for any of the leadership roles except producer in rational goal culture type. Multiple correlations were statistically significant in rational goal and hierarchical culture types. Results of stepwise multiple regression showed the simplest path model for group, rational goal, and hierarchical culture types to include one leadership role. Again, both leadership roles were significantly related to each other within each culture type.

**Hypothesis Two**

The second hypothesis predicted that small size schools would exhibit a strong relationship to group and developmental culture types. This hypothesis was partially supported by the findings of this study. Mean scores and results for paired sample t-tests for each culture type within total population, small school sample, medium size schools, and large size schools are presented in Table 14. When comparing the means of the four culture types, group culture type was higher (11.50) than the other three for schools in the small classification. However, the mean for developmental culture type (9.16) was the lowest. Results of paired sample t-tests showed significant differences between the means of all four culture types.

**Hypothesis Three**

The third hypothesis predicted that medium size schools would have a relationship with all four culture types. The range of mean scores for culture types within the medium size schools was smaller than the range of mean scores for total, small school sample, and
large schools (10.04-11.40). Results of a paired sample t-test showed there was not a significant mean difference between group and rational goal culture type. There also was not a significant mean difference between developmental and hierarchical. Although a smaller range of means existed, means for both group and rational goal were statistically higher than hierarchical and developmental. The results of this study did not support the third hypothesis.

Table 14

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<th>Large</th>
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<td>11.50e</td>
<td>11.40i</td>
<td>11.67k</td>
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<td>10.77f</td>
<td>11.27j</td>
<td>11.22l</td>
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<tr>
<td>Hierarchical</td>
<td>10.20c</td>
<td>10.29g</td>
<td>10.36i</td>
<td>9.67k,1⁺</td>
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<tr>
<td>Developmental</td>
<td>9.83d</td>
<td>9.16h</td>
<td>10.04j</td>
<td>10.70m⁺</td>
</tr>
</tbody>
</table>

Note. Paired sample t-tests were conducted on all combinations of culture types within the size classification. Means with the same subscripts indicate a non-significant difference between culture types within that size classification (p < .05); + indicates out of order sequence.

Hypothesis Four

The fourth hypothesis predicted that large size schools would exhibit a strong relationship with rational goal and hierarchical culture types. The highest mean score for large schools was in group culture type (11.67) and the lowest was in hierarchical culture.
type (9.67). Results of a paired sample t-test indicated a significant mean difference between group and rational goal, as well as between developmental and rational goal. Further, referring to table 5 on page 83, the correlation between school size and developmental culture type (r = .21, p < .01) for the total sample population suggested that larger schools tended to be more developmental than smaller ones. The fourth hypothesis was not supported by the results of this study.

**Hypothesis Five**

The fifth hypothesis predicted an inverse relationship between percentage of students on free/reduced lunch and rational goal culture type. For the total sample population, medium size schools, and large size schools correlational analysis showed an inverse relationship. However, only in medium size schools was a statistically significant relationship (p < .05) found between percentage of students on free/reduced lunch and rational goal culture type. Within the small school sample, no statistically significant relationship existed between rational goal culture type and percentage of students on free/reduced lunch. In multiple regression, an inverse relationship was found in all of the size classifications between rational goal culture type and percentage of students on free/reduced lunch. However, percentage of students on free/reduced lunch did not enter any of the stepwise multiple regression equations. Therefore, the fifth hypothesis was given weak support in this study; yet the reader is cautioned that although the results indicated an inverse relationship existed, the findings were not conclusive.
CHAPTER V
SUMMARY AND CONCLUSIONS

American society is undergoing change. Schools are not exempt from the changing society in which they function. Awareness and criticism of public schools is growing across the nation. The call for change in public education has been sounded throughout the country from a plethora of sources.

What have schools done to try and meet the needs and demands of a changing society? Reform efforts gained impetus with the 1983 publication of *A Nation at Risk: The Imperative for School Reform* (National Commission on Excellence in Education, 1983). Initial reform efforts centered on mandates from the national and state governments (Purkey & Smith, 1982). These initial reform efforts were prescribed by government officials and bureaucrats with little involvement of teachers (Wincek, 1995). The initial reform movement failed to bring about substantive change and improvement in public schools (Deal, 1985; Johnston, 1987; Levin, 1986; Lieberman, 1990; Saphier & King, 1985).

The second wave of reform in public education came in the form of involving the people within education at the district and building levels. It was during this period that the effective schools movement gained prominence (Cunningham & Gresso, 1993). The correlates of effective schools became the guiding force for many schools throughout the United States. As outgrowths of the effective schools movement, programs and philosophies were instituted at the district and building levels. Included were site-based management, shared decision-making, and teacher empowerment (Caulderon, 1991;

More recently added emphasis has been given to the culture of individual schools. This movement is predicated on changing values, beliefs, rituals, philosophy, norms of interaction, and expectations about the way things are done, and defines what is and what is not possible or acceptable (Karpicke & Murphy, 1996). In simple terms, changing the culture of a school requires a changing of the people within that school.

What is known about how school culture develops? Most literature dealing with school culture comes from ethnographic and case studies. These studies provide rich, deep descriptions of those schools involved in the study (Deal & Peterson, 1990, 1994). However, little of these studies may be used to transcend schools and allow for generalizations. Further, what factors influence school culture? What leadership role does the principal play? What is the influence of socioeconomic level and building size on school culture?

This chapter will provide a summary of the data analysis. It also will provide conclusions drawn from the study, limitations of the study, and recommendations for further research.

Summary

This was an exploratory study designed to test the Competing Values Framework in the public school setting. It was a study of the relationship between school size,
socioeconomic level, and Iowa public high school principals' perceptions of leadership roles to school culture.

The purpose of this study was to explore the relationship of leadership, socioeconomic level, and building size to school culture. Utilizing the Competing Values Framework (Quinn & Rohrbaugh, 1981, 1983), four causal models were developed and tested using path analysis. The dependent (endogenous) variable in each model was culture type. Independent (exogenous) variables included two leadership roles (facilitator and mentor with group culture, innovator and broker with developmental culture, producer and director with rational goal culture, and coordinator and monitor with hierarchical culture), socioeconomic level (defined as percentage of students on free/reduced lunch), and building size (enrollment).

The sample for the study included 250 public high schools in the state of Iowa. Of these 250 total participants, 102 were classified as small size schools, 102 as medium size schools, and 46 as large size schools. The Competing Values: Culture Instrument and the Competing Values: Leadership Instrument were mailed to the principals of the 250 schools. The overall return rate was 233 of a possible 250 or 93.2%. Small size schools return was 92 of a possible 102 or 90.2%. The return rate for medium size schools was 95 of a possible 102 or 93.1%. The large school return was 46 of a possible 46 or 100%. The surveys provided perceptual data from the building principal. In addition, the Iowa Department of Education provided data for the 1998-1999 school year on building size and percentage of students on free/reduced lunch for public high schools in Iowa. Additional demographic data were also provided by the Iowa Department of Education.
These data were used to compare the overall population to the sample population and to conduct path analysis utilizing correlations, multiple regression and stepwise multiple regression.

Preliminary analysis using descriptive statistics was done to compare the overall population to the sample population. Included in these comparisons were age, gender, race, tenure in current position, overall educational experience, and highest degree held by Iowa public high school principals. Also included were ethnic make-up and percentage of students on free/reduced lunch in Iowa public high schools. The sample population was very representative of the overall population.

All statistical testing was completed for the total population (N = 233), small school sample (n = 92), medium size schools (n = 95), and large size schools (n = 46). Correlation, multiple regression, and stepwise multiple regression were utilized in path analysis. The summary of findings is presented for the total sample, small school sample, medium size schools, and large size schools.

**Total Sample**

Correlation among leadership roles and their respective culture types were all statistically significant at the \( p < .01 \) level. Only in developmental culture type was building size statistically significant. Free/reduced lunch was not statistically significant in any of the culture types. Multiple regression analysis indicated that the multiple correlations were statistically significant at the \( p < .01 \) level in all four culture types. However, only in hierarchical culture type were both leadership roles statistically significant. In the other three culture types, only one leadership role was found to be
Building size was statistically significant in both developmental and hierarchical culture types at the $p < .05$ level. Free/reduced lunch was not statistically significant in any of the four culture types. In stepwise multiple regression, facilitator remained in the simplest path model in group culture type, innovator and building size in developmental culture type, producer in rational goal culture type, and coordinator and monitor in hierarchical culture type.

**Small School Sample**

Correlation among leadership roles and their respective culture types varied greatly. Neither leadership role was statistically significant within group culture type. In developmental, rational goal, and hierarchical culture types, only one leadership role was statistically significant. Building size and free/reduced lunch were not statistically significant in any of the culture types. Multiple regression analysis showed the multiple correlation to be statistically significant only in developmental culture type. Neither leadership role was statistically significant in group and hierarchical culture types. In developmental, only innovator was a statistically significant contributor, while in rational goal, only producer was statistically significant. Building size and free/reduced lunch were not statistically significant in any of the culture types. Stepwise multiple regression showed no path model for group culture type, innovator in developmental, producer in rational goal, and coordinator in hierarchical.

**Medium Size Schools**

Significant correlations of both leadership roles and their culture type were found in group, developmental, and hierarchical culture types. In rational goal, only producer had
a statistically significant correlation. Building size was not statistically significant in any of the culture types. Free/reduced lunch was statistically significant only in rational goal culture type and represented an inverse relationship. Multiple regression analysis showed statistically significant multiple correlations in all of the culture types. In group culture type, neither leadership role was statistically significant, while only one leadership role was statistically significant in developmental and hierarchical culture types. Both producer and director were statistically significant contributors within rational goal culture type. Building size and free/reduced lunch were not statistically significant contributors in any of the culture types. Stepwise multiple regression showed the simplest path model for group culture type to include only mentor, only innovator in developmental, and monitor in hierarchical. Both leadership roles (producer and director) were retained in rational goal culture type.

**Large Size Schools**

Correlations among leadership roles and their respective culture types were both statistically significant in group, rational goal, and hierarchical culture types. Neither leadership role was statistically significant with developmental. Building size and free/reduced lunch were not statistically significant in any of the four culture types. Multiple regression analysis showed a statistically significant multiple correlation only in rational goal and hierarchical culture types. Only in rational goal was a leadership role found to have a statistically significant beta weight (producer). No leadership role was statistically significant in the other three culture types. Building size and free/reduced lunch were not statistically significant contributors in any of the culture types. Stepwise
multiple regression retained mentor in group culture type, producer in rational goal, and
monitor in hierarchical in the simplest path models. No variables were retained in
developmental culture type.

Conclusions

Based on the analysis of statistical findings, the following conclusions have been
made. The reader is reminded to review the final section of chapter four entitled,
Statistical Findings in Support/Non-Support of the Hypotheses.

1. Based on the results of the total population, the Competing Values Framework
was supported. In the total population, the two leadership roles for each culture type
were significantly related to their designated culture type. Support for the model was
also found in the small school sample, medium size schools, and large size schools.
Support in these areas was not as convincing as in the total sample but it appears that the
Competing Values Framework holds promise as a basis for future study within the
educational arena.

2. Based on the mean scores presented in Tables 1, 2, 3, and 4 on pages 77-80, Iowa
public high school principals have mentor and facilitator as dominant leadership roles. A
list of mean scores for leadership roles is presented in Table 15 for the total sample, small
school sample, medium size schools, and large size schools. The reader is reminded to
notice the similarities presented in Table 15 between total sample, small school sample,
medium size schools, and large size schools. These results suggest that Iowa public high
school principals, regardless of school size, view their primary leadership role as culture
builders. Both mentor and facilitator are associated with group culture type and
emphasize human development. This supports the literature presented earlier about culture building within schools as well as leadership through development of people (Quinn, 1988; Sergiovanni, 1984, 1993, 1996). It should also be noted that in all size categories, either coordinator or director was represented very strongly. Both of these leadership roles emphasized the management component of what a principal does. Each talks about clarifying expectations, setting goals, and maintaining the structure of the system. From these results, one could infer there is a self-perceived emphasis on facilitative leadership among Iowa public high school principals, but also a continuation of the management functions of the principalship. This lends support to current literature from the area: "Changes in structure must go hand in hand with changes in the culture . . . Neglecting one or the other is sure-fire recipe for failure" (Fullan & Miles, 1992, p. 748).

3. Drawing from Table 15, it appears that Iowa public high school principals utilize many leadership roles. The range of mean scores for leadership roles in the total sample was 18.13-23.31; in small school sample from 18.11-23.14; in medium size schools from 17.83-23.34; and, in large size schools from 18.76-23.61. All of the leadership roles are represented. From this, one can surmise that public high school principals in Iowa utilize all the leadership roles to some extent. According to Quinn (1988), master managers see their organizations as evolving, changing, and dynamic systems. They as leaders must have the aptitude and ability to lead and manage in different ways depending on the situation and overall condition of the organization. The results from this study support this multi-faceted approach to leadership and supports the literature on transformational
leadership (Burns, 1978, Leithwood, 1992, 1996), facilitative leadership (Murphy & Louis, 1994), servant leadership (Greenleaf, 1977; Murphy & Louis, 1994; Sergiovanni, 1992), and value-added leadership (Sergiovanni, 1990).

Table 15

Mean Scores for Frequency of Leadership Roles for Total Sample, Small School Sample, Medium Size Schools, and Large Size Schools

<table>
<thead>
<tr>
<th>Leadership Role</th>
<th>Total Sample</th>
<th>Small School Sample</th>
<th>Medium Size Schools</th>
<th>Large Size Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentor</td>
<td>23.31</td>
<td>23.14</td>
<td>23.34</td>
<td>23.61</td>
</tr>
<tr>
<td>Facilitator</td>
<td>22.88</td>
<td>22.29</td>
<td>23.02</td>
<td>23.74</td>
</tr>
<tr>
<td>Coordinator</td>
<td>22.80</td>
<td>22.89</td>
<td>23.04</td>
<td>22.11</td>
</tr>
<tr>
<td>Director</td>
<td>21.13</td>
<td>20.47</td>
<td>21.25</td>
<td>22.22</td>
</tr>
<tr>
<td>Producer</td>
<td>20.64</td>
<td>19.80</td>
<td>20.75</td>
<td>22.11</td>
</tr>
<tr>
<td>Innovator</td>
<td>20.63</td>
<td>20.09</td>
<td>20.51</td>
<td>21.98</td>
</tr>
<tr>
<td>Broker</td>
<td>19.67</td>
<td>19.23</td>
<td>19.62</td>
<td>20.67</td>
</tr>
<tr>
<td>Monitor</td>
<td>18.13</td>
<td>18.11</td>
<td>17.83</td>
<td>18.76</td>
</tr>
</tbody>
</table>

Note. Means are listed from highest to lowest for the total sample.

4. It seems Iowa public high school principals view their schools most closely with group culture type. As demonstrated in Table 14, the highest mean score for total
sample, small school sample, medium size schools, and large size schools was in group culture type. Group culture type places emphasis on human resources with a great deal of information sharing and shared decision-making (Quinn, 1988). This again lends credence to the movement toward culture building in Iowa public high schools. Additionally in each size classification, rational goal culture type had the second highest mean. Rational goal culture type focuses on profit and the bottom line with a suggestion of rational action present throughout (Quinn, 1988). This indicates although the dominant culture type focuses on human resources and development, there is a strong expectation for producing results. A similarity exists when comparing this to the leadership roles of the principal. In both areas the primary focus was on people yet a strong underpinning remained on control, management, and results. There appears to be a movement toward a collaborative type school culture occurring. However, the results of this study indicate this is occurring as an evolving process over a period of time. The control, management, and bottom line facets of schools are still present and reasonably strong.

5. Building size (enrollment) was not significantly correlated to any culture types in the small school sample, medium size schools, and large size schools. It was significantly correlated only to developmental culture type in the total sample. In multiple regression, it was a significant partial contributor only in developmental and hierarchical culture types in medium size schools. Building size was not a contributor in the other size classifications or culture types. This was somewhat surprising. However
the range of enrollment figures was much greater in the total population than in the other classifications which may have allowed for truer testing of the relationship.

6. There did not appear to be major differences between how principals from small, medium, and large size schools assessed their school culture and leadership roles. It was assumed from the literature larger schools would have increased bureaucracy and be more impersonal in nature (Howley, 1997; Lee & Smith, 1997). It was assumed that larger schools then would exhibit stronger characteristics of rational goal and hierarchical culture types due to the number of people involved within their systems. This research did not support this notion. However, multiple regression testing showed a significant multiple correlation for large schools only in rational goal and developmental culture types. It appears that building principals, regardless of the size of school, are moving toward a cultural, people-centered approach.

7. Percentage of students on free/reduced lunch (measure of socioeconomic level) was not significantly related to culture types in the total sample, small school sample, and large size schools. It was significantly related only to the rational goal culture type in the medium size schools and represented an inverse relationship. Rational goal culture type focused on profit, bottom line, and results. The literature supports socioeconomic level as a strong predictor of academic achievement (Lee et al., 1997; Spade et al., 1997). Consequently an inverse relationship was expected between free/reduced lunch and rational goal culture type in all of the size categories. A negative correlation was found between percentage of students on free/reduced lunch and rational goal culture type in total sample, medium size schools, and large size schools. However only in the medium
size schools was the correlation significant. Further, socioeconomic level was not retained in the simplest path model for the total sample population, small school sample, medium size schools, and large size schools.

Limitations

In this section, limitations with and within this study are shared.

1. This study utilized one time data collection. Various factors could have affected the data. For instance, the time of year the survey was filled out, how busy the principal was when he/she completed the surveys, and the level of understanding of the principal on leadership and culture could all have affected responses given on the surveys.

2. The sample population for this study was comprised solely of public high schools within Iowa. Iowa may not be typical to other regions of the country.

3. The size of the large school population was not large enough to promote generalizations from this study for that size classification. If future study follows a similar research design within Iowa, there isn't a solution to this limitation.

4. This study utilized the perceptions of public high school principals in Iowa. Quinn (1988) suggests that managers assess themselves in a more positive fashion than the people around them. Hence, a limitation of this study involved the possibility of inflated responses from the principals. Directions to the surveys included strong statements indicating there were no right or wrong answers. However, the potential for inflated response still exists.
5. Although utilized in this study and earlier by Ott (1993) in education, the Competing Values Framework is a theoretical model developed for use in the business world.

Recommendations

1. Based on the results of this study and those of Ott (1993), it is possible to investigate school culture from a quantitative perspective. Culture by its nature is a difficult concept to study and understand. Most attempts to study school culture have been in the form of case studies and ethnographic studies. It is possible to supplement these types of studies with a quantifiable component. Further quantitative study of school culture is recommended.

2. Based on the results of this study and Ott’s (1993), the Competing Values Framework appears to hold promise for future research in education. The reader is invited to compare the results of this study of Iowa public high schools to those of Ott (1993) on Iowa elementary schools. Basic conclusions drawn by Ott are presented in Appendix A. It is recommended that the Competing Values Framework be utilized in exploring school culture at the middle school level and district level. Replication at the elementary and high school levels is also recommended.

3. It is recommended that future research utilizing the Competing Values Framework incorporate a longitudinal component in the research design. This would lessen the likelihood of responses from participants being affected by the influences or conditions of the day.
4. This study was designed as a recursive model where only unidirectional causal relationships were investigated (Gall et al., 1996). It is recommended that a nonrecursive model be considered for future research. A nonrecursive model tests reciprocal relationships within causal paths. This type of research design would allow more flexibility with leadership roles within the Competing Values Framework. It also would allow investigation into whether certain variables affect culture or culture affects other variables.

5. Iowa appears to be somewhat unique in that the number of small schools is substantially larger than the number of large schools. Consequently, it was impossible to attain a large enough sample size for large schools in Iowa to meet the needed sample size of approximately 85 to achieve an .80 probability of detecting a correlation (Cohen, 1977). It is recommended that future research design include a larger geographic area than Iowa.

6. This study relied on the perceptions of one person, the principal. It is recommended that future research include teachers, principals, superintendents, central office, and even support staff. Including different positions within the research design may arrive at a deeper scientific assessment of reality.

7. It is recommended that principal preparation programs emphasize the potential of quantitative assessment of school culture. Case studies and ethnographic studies continue to offer a more in-depth look at school culture. However, it is possible to supplement research with quantitative analysis. The Competing Values Framework offers such an assessment and could be utilized in administrator training programs.
Reflections

Like most educators I have traditionally viewed school culture through the lenses of case studies. This study provided the opportunity to learn more about school culture from a different perspective, the Competing Values Framework. I found this approach to be useful and even fascinating at times.

What has the study really shown? To me, the most exciting finding was the perceived importance of principals being shapers of school culture. Being a practicing principal, this finding was refreshing. Sometimes it is pretty easy to get swamped with the managerial duties of the job. However, what principals are doing with the culture of their schools is what is really important. Please do not misconstrue that management functions of the principal are not important because they are. However, management functions of the principalship are not enough if schools ever are to realize the potential within them. Positive change for our students will not occur without positive leadership.

I also was surprised that the size of the school really did not impact this study to any great degree. My perception has always been that smaller schools are more personal in nature than larger schools. Based on the results of this study, my perception was not accurate. At least based on the perception of the principal, there really was a negligible difference in culture types in the various size schools in Iowa.

Culture holds great promise in the study of schools and their improvement. Based on the results of this study, it is the belief of the writer that it is possible to quantitatively investigate school culture and make discoveries broader than plausible with ethnographic or case studies. It is not the belief of the writer that school culture should be studied
strictly in a quantitative manner. Rather, quantitative study should be used in conjunction with other non-quantitative research designs.
REFERENCES


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APPENDIX A

Conclusions Drawn By Ott (1993)

1. Iowa elementary principals perceive they place either strong or moderate emphasis on each of the leadership roles (p. 151).

2. The principals in each of the culture profiles perceived a relatively common prioritization of their leadership role activity (p. 151).

3. The predictive relationship between leadership roles and school culture types was supported as proposed in the Competing Values Framework (p. 153).

4. The study lends credence to the role of principals as culture shapers (p. 153).

5. Iowa elementary principals perceived the culture of their school to be a combination of the four ideal culture types presented (p. 153).

6. Iowa elementary principals perceived that the characteristics of group culture were strongly represented in their schools' cultures (p. 154).

7. The four clusters of culture profiles of Iowa elementary schools as perceived by elementary principals supported the theoretical and pragmatic flexibility of the Competing Values Framework (p. 154).

8. The application of the Competing Values Framework to the educational setting appeared to hold considerable potential for understanding what has often been viewed as contradictory life in schools (p. 155).

9. The study suggests qualitative assessment of school culture through case studies, interviews, and in-depth historical analysis may be coupled with quantitative measures. The instruments used in the Competing Values Framework were short and easily

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administered, which allows for comparative studies and a number of culture patterns (pp. 155-156).

10. Free and reduced lunch was correlated only to the rational goal culture Type, but the correlation was too small to be interpretable (p. 156).

APPENDIX B

Competing Values: Culture Instrument

The following statements describe types of operating values which may exist in your school. Please indicate the extent to which each statement describes your school. None of the descriptions is any better than others, they are just different. Please circle the number that best describes your school, with 1 = low and 5 = high.

1. Your school is a very personal place. It is like an extended family. People seem to share a lot of themselves.
   (minimally describes) 1 2 3 4 5 (highly describes)

2. Your school is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.
   (minimally describes) 1 2 3 4 5 (highly describes)

3. Your school is a very formal and structured place. People pay attention to procedures to get things done.
   (minimally describes) 1 2 3 4 5 (highly describes)

4. Your school is a production oriented place. People are concerned with getting the job done.
   (minimally describes) 1 2 3 4 5 (highly describes)

5. The glue that holds the school together is loyalty and tradition. Commitment runs high.
   (minimally describes) 1 2 3 4 5 (highly describes)

6. The glue that holds your school together is commitment to innovation and development. There is an emphasis on being first with new programs and services.
   (minimally describes) 1 2 3 4 5 (highly describes)

7. The glue that holds your school together is formal rules and policies. Following rules is important.
   (minimally describes) 1 2 3 4 5 (highly describes)

8. The glue that holds your school together is an emphasis on tasks and goal accomplishment. A production and achievement orientation is shared.
   (minimally describes) 1 2 3 4 5 (highly describes)

9. Your school emphasizes human resources. Morale is important.
   (minimally describes) 1 2 3 4 5 (highly describes)

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10. Your school emphasizes growth through developing new ideas. Generating new programs and services is important.  
(minimally describes) 1 2 3 4 5 (highly describes)

11. Your school emphasizes permanence and stability. Efficiency is important.  
(minimally describes) 1 2 3 4 5 (highly describes)

12. Your school emphasizes outcomes and achievement. Accomplishing goals is important.  
(minimally describes) 1 2 3 4 5 (highly describes)

APPENDIX C

Competing Values Culture Instrument: Scoring and Item Key

The correspondence for each of the ideal culture types to the instrument is presented below. The points on a Likert Scale of 1-5 for each item are totaled to arrive at a score in each of the following categories.

1. Group Culture (Alpha = .84)

   1. Your school is a very personal place. It is like an extended family. People seem to share a lot of themselves.

   5. The glue that holds the school together is loyalty and tradition. Commitment runs high.

   9. Your school emphasizes human resources. Morale is important.

2. Developmental Culture (Alpha = .81)

   2. Your school is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.

   6. The glue that holds your school together is commitment to innovation and development. There is an emphasis on being first with new programs and services.

   10. Your school emphasizes growth through developing new ideas. Generating new programs and services is important.

3. Hierarchical Culture (Alpha = .77)

   3. Your school is a very formal and structured place. People pay attention to procedures to get things done.

   7. The glue that holds the school together is formal rules and policies. Following rules is important.

   11. Your school emphasizes permanence and stability. Efficiency is important.
4. Rational Goal Culture (Alpha = .78)

4. Your school is a production oriented place. People are concerned with getting the job done.

8. The glue that holds your school together is an emphasis on tasks and goal accomplishment. A production and achievement orientation is shared.

12. Your school emphasizes outcomes and achievement. Accomplishing goals is important.

APPENDIX D

Competing Values: Leadership Instrument

Listed below are some behaviors that a principal may employ. Using the following scale, please indicate the frequency with which you currently use each one by circling the appropriate number. There are no right or wrong answers. Rather, this is simply a matter of personal leadership style.


1  2  3  4  5  6  7  
1. Inventing new ideas
1  2  3  4  5  6  7  
2. Protecting continuity in day-to-day operations
1  2  3  4  5  6  7  
3. Exerting upward influence on superordinates (someone above you in the school structure)
1  2  3  4  5  6  7  
4. Reviewing detailed reports
1  2  3  4  5  6  7  
5. Maintaining an “outcomes” or “results” orientation in the school
1  2  3  4  5  6  7  
6. Facilitating consensus building
1  2  3  4  5  6  7  
7. Defining areas of responsibility for subordinates (people under you in the school structure)
1  2  3  4  5  6  7  
8. Listening to the personal problems of subordinates
1  2  3  4  5  6  7  
9. Minimizing disruptions to the work flow
1  2  3  4  5  6  7  
10. Experimenting with new concepts and procedures
1  2  3  4  5  6  7  
11. Encouraging participative decision making
1  2  3  4  5  6  7  
12. Making sure everyone knows where the school is going—providing clear direction.
1  2  3  4  5  6  7  
13. Influencing decisions at higher level
1  2  3  4  5  6  7  
14. Comparing records, reports and detecting discrepancies
1  2  3  4  5  6  7  
15. Seeing that the school delivers on stated goals
16. Showing empathy and concern in dealing with subordinates
17. Working with technical information (knowledge that pertains specifically to teaching and learning)
18. Getting access to superordinates
19. Setting clear objectives for the school
20. Treating each individual in a sensitive, caring way
21. Keeping track of what goes on inside of the school
22. Problem solving in creative, clever ways
23. Stimulating effort to meet school objectives
24. Encouraging subordinates to share ideas
25. Searching for innovations and potential improvements
26. Clarifying priorities and directions
27. Persuasively selling new ideas to superordinates
28. Bringing a sense of order to the school
29. Showing concern for the needs of subordinates
30. Emphasizing the school’s achievement of stated purposes
31. Building teamwork among group members
32. Analyzing written plans and schedules

APPENDIX E

**Competing Values Leadership Instrument: Scoring and Item Key**

The correspondence of each of the leadership roles to the instrument is presented below. The points on a Likert Scale of 1-7 for each item are totaled to arrive at a score in each of the following categories:

<table>
<thead>
<tr>
<th>Item Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovator (Alpha = .90; Factor Variance = 2.24)</td>
</tr>
<tr>
<td>1. Inventing new ideas</td>
</tr>
<tr>
<td>10. Experimenting with new concepts and procedures</td>
</tr>
<tr>
<td>22. Problem solving in creative, clever ways</td>
</tr>
<tr>
<td>25. Searching for innovations and potential improvements</td>
</tr>
<tr>
<td>Broker (Alpha = .85; Factor Variance = 1.94)</td>
</tr>
<tr>
<td>3. Exerting upward influence in the organization</td>
</tr>
<tr>
<td>13. Influencing decisions made at higher levels</td>
</tr>
<tr>
<td>18. Accessing people at higher levels</td>
</tr>
<tr>
<td>27. Persuasively selling new ideas to higher-ups</td>
</tr>
<tr>
<td>Producer (Alpha = .72; Factor Variance = 1.37)</td>
</tr>
<tr>
<td>5. Maintaining an “outcomes” or “results” orientation in the school</td>
</tr>
<tr>
<td>15. Seeing that the school delivers on stated goals</td>
</tr>
<tr>
<td>23. Stimulating effort to meet school objectives *</td>
</tr>
<tr>
<td>30. Emphasizing the school’s achievement of stated purposes *</td>
</tr>
</tbody>
</table>

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4. Director (Alpha = .79; Factor Variance = 1.52)
   7. Defining areas of responsibility for subordinates (.54)
   12. Making sure everyone knows where the school is going—providing clear direction (.51)
   19. Setting clear objectives for the school (.49)
   26. Clarifying priorities and direction *

5. Coordinator (Alpha = .77; Factor Variance = 1.29)
   2. Protecting continuity in day-to-day operations (.43)
   9. Minimizing disruptions to the work flow (.40)
   21. Keeping track of what goes on inside the school (.56)
   28. Bringing a sense of order into the school ** (.48)

6. Monitor (Alpha = .73; Factor Variance = 1.54)
   4. Carefully reviewing detailed reports (.67)
   14. Comparing records, reports; detecting discrepancies (.69)
   17. Working with technical information (knowledge that pertains specifically to teaching and learning) ** (.49)
   32. Analyzing written plans and schedules *

7. Facilitator (Alpha = .89; Factor Variance = 2.07)
   6. Facilitating consensus building in the school (.54)
   11. Encouraging participative decision making in the group (.63)
   24. Encouraging subordinates to share ideas in the group (.63)
   31. Building teamwork among group members (.54)
8. Mentor (Alpha = .87; Factor Variance = 2.13)

8. Listening to the personal problems of subordinates (.64)
16. Showing empathy and concern in dealing with subordinates (.75)
20. Treating each individual in a sensitive, caring way (.71)
29. Showing concern for the needs of subordinates ** (.40)

* New item since last analysis

** Wording modified since last analysis

APPENDIX F

Preliminary Data Analysis Comparing the Sample to the Population

Preliminary analysis utilized descriptive statistics to ensure representativeness of the sample used in the study to the overall population. The following variables were compared: age of the principal, gender of the principal, race of the principal, tenure of the principal in his/her current position, overall educational experience of the principal, highest degree earned by the principal, percentage of minority students in each high school, and percentage of students on free/reduced lunch in each high school. All data were garnered from the Iowa Department of Education for the 1998-1999 school year.

Comparison of descriptive statistics was made between all schools in Iowa (n = 368), schools used in the sample (n = 250), all small size schools in Iowa, as defined in this study (n = 220), small schools used in this study (n = 102), medium size schools (n = 102), and large size schools (n = 46). Results are presented in Tables F1, F2, F3, F4, F5, and F6.

It was concluded that the sample population used in this study was representative of the total population within Iowa.
Table F1

**Descriptive Statistics for All Schools in Iowa (N = 368)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal (mean)</td>
<td></td>
<td>46.86 years</td>
</tr>
<tr>
<td>Gender of the principal (number/percentage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>327</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>Race of the principal (number/percentage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td>359</td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>American Indian</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Tenure of the principal in current position (mean)</td>
<td></td>
<td>8.66 years</td>
</tr>
<tr>
<td>Total educational experience of the principal (mean)</td>
<td></td>
<td>22.20 years</td>
</tr>
<tr>
<td>Highest degree held by the principal (number/percentage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Masters</td>
<td></td>
<td>324</td>
</tr>
<tr>
<td>Specialists</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Doctorate</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Student minority percentage of the high school (percentage)</td>
<td></td>
<td>3.30%</td>
</tr>
<tr>
<td>Percentage of students on free/reduced lunch (percentage)</td>
<td></td>
<td>21.77%</td>
</tr>
</tbody>
</table>
Table F2

**Descriptive Statistics for Schools Used in the Study (n = 250)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean or Number/Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal (mean)</td>
<td>46.97 years</td>
</tr>
<tr>
<td>Gender of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>224</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
</tr>
<tr>
<td>Race of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>246</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
</tr>
<tr>
<td>Tenure of the principal in current position (mean)</td>
<td>9.50 years</td>
</tr>
<tr>
<td>Total educational experience of the principal (mean)</td>
<td>22.61 years</td>
</tr>
<tr>
<td>Highest degree held by the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>6</td>
</tr>
<tr>
<td>Masters</td>
<td>217</td>
</tr>
<tr>
<td>Specialists</td>
<td>11</td>
</tr>
<tr>
<td>Doctorate</td>
<td>16</td>
</tr>
<tr>
<td>Student minority percentage of the high school (percentage)</td>
<td>4.15%</td>
</tr>
<tr>
<td>Percentage of students on free/reduced lunch (percentage)</td>
<td>20.45%</td>
</tr>
</tbody>
</table>
## Table F3

**Descriptive Statistics for All Small Size Schools in Iowa (n = 220)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal (mean)</td>
<td>46.19 years</td>
</tr>
<tr>
<td>Gender of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>194 (88.20%)</td>
</tr>
<tr>
<td>Female</td>
<td>26 (11.80%)</td>
</tr>
<tr>
<td>Race of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>213 (96.80%)</td>
</tr>
<tr>
<td>Black</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Asian</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>American Indian</td>
<td>6 (2.70%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (.50%)</td>
</tr>
<tr>
<td>Tenure of the principal in current position (mean)</td>
<td>7.11 years</td>
</tr>
<tr>
<td>Total educational experience of the principal (mean)</td>
<td>20.95 years</td>
</tr>
<tr>
<td>Highest degree held by the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>8 (3.60%)</td>
</tr>
<tr>
<td>Masters</td>
<td>201 (91.40%)</td>
</tr>
<tr>
<td>Specialists</td>
<td>9 (4.10%)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2 (.90%)</td>
</tr>
<tr>
<td>Student minority percentage of the high school (percentage)</td>
<td>1.59%</td>
</tr>
<tr>
<td>Percentage of students on free/reduced lunch (percentage)</td>
<td>24.34%</td>
</tr>
</tbody>
</table>
Table F4

Descriptive Statistics for All Small Schools in Iowa Used in the Study (n = 102)

<table>
<thead>
<tr>
<th>Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal (mean)</td>
<td>45.68 years</td>
</tr>
<tr>
<td>Gender of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>91</td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
</tr>
<tr>
<td>Race of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>100</td>
</tr>
<tr>
<td>Black</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
</tr>
<tr>
<td>Tenure of the principal in current position (mean)</td>
<td>7.35 years</td>
</tr>
<tr>
<td>Total educational experience of the principal (mean)</td>
<td>20.48 years</td>
</tr>
<tr>
<td>Highest degree held by the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>5</td>
</tr>
<tr>
<td>Masters</td>
<td>94</td>
</tr>
<tr>
<td>Specialists</td>
<td>2</td>
</tr>
<tr>
<td>Doctorate</td>
<td>1</td>
</tr>
<tr>
<td>Student minority percentage of the high school (percentage)</td>
<td>1.69%</td>
</tr>
<tr>
<td>Percentage of students on free/reduced lunch (percentage)</td>
<td>24.10%</td>
</tr>
</tbody>
</table>
Table F5

Descriptive statistics for all medium size schools in Iowa (n = 102)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal (mean)</td>
<td>46.82 years</td>
</tr>
<tr>
<td>Gender of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>95</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
</tr>
<tr>
<td>Race of the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>102</td>
</tr>
<tr>
<td>Black</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
</tr>
<tr>
<td>American Indian</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
</tr>
<tr>
<td>Tenure of the principal in current position (mean)</td>
<td>10.02 years</td>
</tr>
<tr>
<td>Total educational experience of the principal (mean)</td>
<td>22.92 years</td>
</tr>
<tr>
<td>Highest degree held by the principal (number/percentage)</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>1</td>
</tr>
<tr>
<td>Masters</td>
<td>93</td>
</tr>
<tr>
<td>Specialists</td>
<td>3</td>
</tr>
<tr>
<td>Doctorate</td>
<td>5</td>
</tr>
<tr>
<td>Student minority percentage of the high school (percentage)</td>
<td>3.23%</td>
</tr>
<tr>
<td>Percentage of students on free/reduced lunch (percentage)</td>
<td>17.41%</td>
</tr>
</tbody>
</table>
Table F6

Descriptive statistics for all large size schools in Iowa (n = 46)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the principal</td>
<td>50.17</td>
</tr>
<tr>
<td>Gender of the principal</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>38</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
</tr>
<tr>
<td>Race of the principal</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>44</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
</tr>
<tr>
<td>American Indian</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
</tr>
<tr>
<td>Tenure of the principal</td>
<td>13.13</td>
</tr>
<tr>
<td>Total educational</td>
<td>26.63</td>
</tr>
<tr>
<td>Highest degree</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>0</td>
</tr>
<tr>
<td>Masters</td>
<td>30</td>
</tr>
<tr>
<td>Specialists</td>
<td>6</td>
</tr>
<tr>
<td>Doctorate</td>
<td>10</td>
</tr>
<tr>
<td>Student minority</td>
<td>11.63%</td>
</tr>
<tr>
<td>Percentage</td>
<td>19.02%</td>
</tr>
</tbody>
</table>