



Teacher perceptions of organizational climate and the ratings of Wyoming elementary school principals  
on selected leadership behaviors  
by Edward Leslie Wright

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education  
Montana State University  
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Abstract:

The problem of this study was to determine if there was a significant difference between the organizational climate scores of Wyoming elementary schools and how such differences related to principals' ratings on the identified leadership behaviors of: (1) supports teachers, (2) emphasizes achievement, and (3) provides orderly atmosphere.

The problem was investigated by: (1) a review of literature related to effective school operations and organizational climate, (2) the development of a two-part questionnaire utilizing the Organizational Climate Description Questionnaire (OCDQ) designed by Andrew W. Halpin to measure school climate and a checklist adapted from the Council of Basic Education as a rating instrument for principals, (3) the selection of population criteria and distribution of survey instruments to a total population of 716 classroom teachers, and (4) the tabulation, analysis and comparison of the data.

The major findings of the study were that: (1) there were significant differences between the organizational climate scores of sample schools, (2) schools with less than two hundred students received the lowest scores in school climate regardless of the ratings of principals on identified leadership behaviors, (3) principals who were rated higher by their teachers in "supports teachers," "emphasizes achievement," and "provides orderly atmosphere" received higher scores on school climate as determined by the general openness score of the OCDQ, and (4) female administrators received higher school climate scores than their male counterparts when general openness scores were used as the dependent variable in leadership behaviors of "supports teachers," and "provides orderly atmosphere." Female administrators also received consistently higher scores than males when OCDQ subtest scores for characteristics of the principal were used as the dependent variable on ratings for "provides orderly atmosphere." The major recommendations included further studies to: (1) discover how other biographical variables of the school principal may affect school climate scores, (2) identify specific interventions to improve the organizational climate of schools, (3) find how principal ratings on other identified leadership behaviors relate to school climate scores. It was also recommended that measurements of school climate be introduced into current school evaluation practices.

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AND THE RATINGS OF WYOMING ELEMENTARY SCHOOL  
PRINCIPALS ON SELECTED LEADERSHIP BEHAVIORS

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Edward Leslie Wright

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

Doctor of Education

MONTANA STATE UNIVERSITY  
Bozeman, Montana

March 1988

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APPROVAL

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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## ACKNOWLEDGEMENTS

Without the advice, expertise and support of many individuals, this study would not have been possible. Sincere appreciation and gratitude are expressed to Dr. Donald L. Robson for his commitment, guidance, helpful criticism and encouragement throughout the research for this study.

The author is very grateful to the principals and teachers of Wyoming schools who provided data for this research. An indebtedness is also owed to many Montana State University staff members and students who have been so helpful during my program. Among them are my committee members to whom I owe special thanks: Dr. Eric R. Strohmeyer, Dr. Gerald Sullivan, Dr. Leroy J. Casagrande and Dr. John W. Kohl.

Last, and certainly not least, I must acknowledge my family: my daughters, Jennifer, Ragen and Leslie, who allowed Dad to miss so many piano recitals, scout meetings, and other highlights with only a few complaints; my wife, Margaret, for understanding my reasons for giving up summer vacations, quiet evenings at home, and traveling out of state to attend classes; and my mother, Donna Lou Kaundart, whose encouragement and memory I will cherish forever. It is in her memory that this thesis is humbly dedicated.

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## ABSTRACT

The problem of this study was to determine if there was a significant difference between the organizational climate scores of Wyoming elementary schools and how such differences related to principals' ratings on the identified leadership behaviors of: (1) supports teachers, (2) emphasizes achievement, and (3) provides orderly atmosphere.

The problem was investigated by: (1) a review of literature related to effective school operations and organizational climate, (2) the development of a two-part questionnaire utilizing the Organizational Climate Description Questionnaire (OCDQ) designed by Andrew W. Halpin to measure school climate and a checklist adapted from the Council of Basic Education as a rating instrument for principals, (3) the selection of population criteria and distribution of survey instruments to a total population of 716 classroom teachers, and (4) the tabulation, analysis and comparison of the data.

The major findings of the study were that: (1) there were significant differences between the organizational climate scores of sample schools, (2) schools with less than two hundred students received the lowest scores in school climate regardless of the ratings of principals on identified leadership behaviors, (3) principals who were rated higher by their teachers in "supports teachers," "emphasizes achievement," and "provides orderly atmosphere" received higher scores on school climate as determined by the general openness score of the OCDQ, and (4) female administrators received higher school climate scores than their male counterparts when general openness scores were used as the dependent variable in leadership behaviors of "supports teachers," and "provides orderly atmosphere." Female administrators also received consistently higher scores than males when OCDQ subtest scores for characteristics of the principal were used as the dependent variable on ratings for "provides orderly atmosphere."

The major recommendations included further studies to: (1) discover how other biographical variables of the school principal may affect school climate scores, (2) identify specific interventions to improve the organizational climate of schools, (3) find how principal ratings on other identified leadership behaviors relate to school climate scores. It was also recommended that measurements of school climate be introduced into current school evaluation practices.

## CHAPTER 1

## INTRODUCTION

The quality of education provided for our children and youth is a major concern in American society. During recent years the desire of the public to hold teachers, principals and school systems accountable for the education of students has become widespread (Boyer, 1983:7).

Public desire for accountability has been heightened as the level of achievement in basic skills and other areas of student behavior has been reported as less than satisfactory by such authors as John Goodlad (1984) in his book, A Place Called School. The public's desire to see how well their schools compare in test scores with other schools and districts in similar situations is clear evidence of a call for accountability.

As early as 1976, Owens and Steinhoff (1976:1) began describing a crisis in the American public schools brought on by diminishing public trust and confidence. This lack of trust continued and gained momentum as reports such as A Nation at Risk (1983:5) reported that ". . . 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."



A Nation at Risk (1983:32) provided a clear call for accountability in its recommendation for leadership and fiscal support:

We recommend that citizens across the Nation hold educators and elected officials responsible for providing the leadership necessary to achieve these reforms.

In implementing the recommendations of A Nation at Risk, school administrators were called upon to play a critical leadership role in bringing about educational reform. Such a request was not surprising since for over one hundred years principals have exercised power and control over the public schools. Because of their importance to public education, numerous studies of principals' functions have been conducted. These studies represent a systematic attempt to understand the role of the school principal.

Knezevich (1975:9) stated that there is no assurance:

. . . that because equipment, personnel, facilities, and resources exist, excellent teaching and resultant learning are occurring in an elementary school. The key ingredient is the elementary principal who has the potential to provide the dynamic leadership that allows the institution to perform its important functions of providing quality education to children.

In 1982, a summary of the eight most important research studies of positive leadership behaviors was published in Educational Leadership (Sweeney, 1982). The positive behaviors of building administrators included: coordinates instructional programs, emphasizes achievement,

frequently evaluates pupil progress, provides orderly atmosphere, sets instructional strategies, and supports teachers.

Sweeney (1982) argued that building principals must exhibit those leadership behaviors within a building in order that teachers might be effective in their classrooms.

Other researchers argued that student success was not as clearly related to school personnel as it was to school climate. Halpin (1966:131) stated:

The open climate describes an energetic, lively organization which is moving toward its goals, and which provides satisfaction for the group members' social needs. Leadership acts emerge easily and appropriately from both the group and the leader. The members are preoccupied disproportionately with neither task achievement nor social-needs satisfaction; satisfaction on both counts seems to be obtained easily and almost effortlessly. The main characteristic of this climate is the 'authenticity' of the behavior that occurs among all the members.

Hughes (1971:12) referred to an "open" climate as a situation within any organization in which participating members receive personal satisfaction from both interpersonal relationships with co-workers and accomplishment of assigned tasks. Halpin (1966:137), on the other hand, described a "closed" climate as being undesirable and crippling to students and instructors alike.

McPhee (1967:188) identified the school principal's position as the motivating force which creates the school climate. In that regard, Halpin (1966:199) stated that in

a "closed" climate, the behavior of the principal fails to foster a condition where staff members are free to design, experiment, or initiate new techniques and methods for teaching or learning.

The attitudes, perceptions, and behaviors of all personnel within the school organization serve as the "personality" of the system as a whole. This personality is what makes organizations whatever they actually are. Halpin (1966:131) stated:

And so, too, as one moves to other schools, one finds that each appears to have a 'personality' of its own. It is this 'personality' that we describe here as the 'Organizational Climate' of the school. Analogously, personality is to the individual what Organizational Climate is to the organization.

A clear relationship between school climate and the principal's performance was noted by Squires (1983:4) when he argued that student success was clearly related to school climate, which was, in turn, related to leadership.

Three leadership processes build and maintain a school's climate: modeling, feedback, and consensus building. Leadership generally comes from the principal, although teachers may provide it as well. Principals in particular, model appropriate behavior, which supports a positive school climate. Principals support inservice programs, monitor classrooms and supervise instruction and provide time for teachers to plan together. By doing so, they set the tone and focus of the school.

Taken as a whole, Sweeney (1982) suggested that principals who emphasized instruction were assertive, results-oriented, and able to develop and maintain an

atmosphere conducive to learning made a difference -- a difference which was reflected in elevated school outcomes. Identifying differences between the organizational climate scores of schools and the ratings of principals on selected leadership behaviors should be helpful in determining how much of a difference principals make in the organizational climate of schools, and how such differences relate to this study's identified leadership behaviors.

#### Statement of the Problem

The problem of this study was to determine if there was a significant difference between the organizational climate scores of Wyoming elementary schools and how such differences relate to the ratings of principals on identified leadership behaviors.

#### Purpose of the Study

The importance of principals in the administration of public schools justifies a systematic study of principal behaviors and their relationship to effective school operations. The present era of increased accountability by parents and students intensifies the need for such awareness.

Sweeney (1982) recommended that there was an obvious need to continue, even intensify, school effectiveness research. Sweeney's recommendations were to focus future

research on the so-called average schools and to clearly define and describe instructional leadership behaviors since in most cases they were stated in vague and general terms.

This study can assist principals, superintendents and colleges of education by providing further information on elementary school principals and the relationship between the organizational climate scores of schools and principals' ratings on selected leadership behaviors.

#### General Questions to Be Answered

This study examined the organizational climate scores of selected Wyoming schools to determine if there were significant differences between the scores, and how such differences were related to the ratings of principals on identified leadership behaviors. The study answered the following questions:

- (1) Were there significant differences in the organizational climate scores of sample schools?
- (2) Were differences in the organizational climate scores of sample schools related to school size?
- (3) Were organizational climate scores (as measured by the Organizational Climate Description Questionnaire [OCDQ], Form IV) related to the ratings of principals on specific leadership behaviors?

- (4) Were organizational climate scores (as measured by the Organizational Climate Description Questionnaire [OCDQ], Form IV) significantly different as they related to the following set of independent variables:
- (a) Principal's age
  - (b) Principal's gender
  - (c) Principal's total years of teaching experience
  - (d) Principal's total years of administrative experience

#### General Procedures

The procedures followed in this study began with an extensive review of literature which provided a background for the study. A random sample of fifty Wyoming elementary schools was drawn from the eligible schools in Wyoming who volunteered to participate in the study. A listing of public schools in Wyoming was used, as recorded in the 1986-87 Wyoming Education Directory. Only elementary schools with seven or more full-time elementary teachers were sampled. Appendix A lists the 159 eligible Wyoming schools. Of those eligible, sixty-three volunteered to participate in the study.

After identifying sample schools in Wyoming, a letter of introduction (see Appendix G) was forwarded to the

superintendent/supervisor of elementary schools three weeks prior to the proposed administration date of the Organizational Climate Description Questionnaire (OCDQ), and school checklist. The letter of introduction explained the need and purpose of the study as well as the benefits to participating districts. Superintendents/supervisors were asked to complete a response checklist (see Appendix E) and return it in a self-addressed, stamped envelope. They were invited to request more information if there were unanswered questions or unresolved concerns hampering their ability to make a decision on the request for this study's execution in their respective school district.

With permission granted from the superintendent/supervisor, principals in the sample schools were forwarded a letter of introduction explaining the study and procedures for participating schools.

Teachers in sample schools were asked to respond to the OCDQ. The questionnaire was administered by the researcher during an after-school meeting called by the school administration.

The OCDQ measured teachers' interpretations of the functioning of the school's organizational environment. All participants were asked to respond to sixty-eight statements using a scale of 1 to 4 (1 = rarely occurs, 2 = sometimes occurs, 3 = often occurs, and 4 = very frequently occurs).

During the same after-school meeting as the OCDQ administration, principals in the sample schools were asked to respond to a biographical data sheet. The biographical data sheet for principals provided information about their gender, age, years of teaching experience and years of administrative experience. Data were also collected concerning school size.

The school checklist measured the teachers' perceptions of the school principal on the following three leadership behaviors: (1) Emphasizes Achievement, (2) Provides Orderly Atmosphere, and (3) Supports Teachers. The results of the school checklist were used to rank the principals as high, medium, or low on each of the leadership behaviors. High and low rankings were assigned by the researcher using plus or minus one standard deviation from the mean.

Data from the OCDQ, school checklist and biographical data sheets were recorded, studied and statistically analyzed. Conclusions and recommendations were drawn and recorded.

Summaries of the study and individual school profiles were mailed to those participating superintendents/supervisors and principals who expressed an interest in the results of the study.



### Limitations

The scope of this investigation was confined to the study of a sample of public elementary schools in Wyoming during the 1986-87 school year. Using only elementary schools with seven or more full-time elementary teachers, a random sample of fifty Wyoming elementary schools was drawn from a list of sixty-three eligible schools who volunteered to participate in the study. The investigation excluded private and parochial schools.

Only those items appearing in the OCDQ as developed by Andrew W. Halpin and Donald B. Croft (Halpin, 1966:148-150) were used as a measurement of organizational climate. Inferences from this study must be limited to those districts within Wyoming and not be considered as appropriate for any other state.

### Definition of Terms

The terms listed below are used throughout this study, and are defined as follows:

- (1) Elementary School Principal: An administrative or supervisory officer responsible for an elementary school, usually limited to a single school or attendance area (Good, 1959:436).
- (2) Supervisor or Elementary Principal: Any school officer charged with the responsibility for the

overseeing and improvement of elementary principals; often a superintendent, assistant superintendent, or director (Good, 1959:401).

- (3) Classroom Teacher: A certified instructional staff member whose assignment includes teaching full-time in a single school building. This excludes librarians, counselors, administrators, and teachers serving more than one school, and other staff members not assigned in terms of definition.
- (4) Organizational Climate: ". . . a delicate blend of interpretations by persons in the organization of their jobs and roles in the organization" (Cornell, 1955:222).
- (5) Organizational Climate Description Questionnaire (OCDQ): Created by Andrew W. Halpin and Donald B. Croft (Halpin, 1966:148-150). A measurement device designed ". . . to dimensionalize the behaviors that define the organizational climate of schools" (Hayes, 1973:3) and ". . . to place schools on a continuum from closed to open climate" (Mullen, 1976:9). Halpin and Croft's (1963:2-5) Six Climates are defined as follows:
  - (a) The Open Climate describes an energetic, lively organization which is moving toward its goals, and which provides satisfaction for the group members' social needs. Leadership acts emerge easily and appropriately from both the group and the leader. The members are preoccupied disproportionately

with neither task achievement nor social-needs satisfaction; satisfaction on both counts seems to be obtained easily and almost effortlessly. The main characteristic of this climate is the 'authenticity' of the behavior that occurs among all the members.

- (b) The Autonomous Climate is described as one in which leadership acts emerge primarily from the group. The leader exerts little control over the group members; high Esprit results primarily from social-needs satisfaction. Satisfaction from task achievement is also present, but to a lesser degree.
- (c) The Controlled Climate is characterized best as impersonal and highly task-oriented. The group's behavior is directed primarily toward task accomplishment, while relatively little attention is given to behavior oriented to social-needs satisfaction. Esprit is fairly high, but it reflects achievement at some expense to social-needs satisfaction. This climate lacks openness, or 'authenticity' of behavior, because the group is disproportionately preoccupied with task achievement.
- (d) The Familiar Climate is highly personal, but under-controlled. The members of this organization satisfy their social needs, but pay relatively little attention to social control in respect to task accomplishment. Accordingly, Esprit is not extremely high simply because the group members secure little satisfaction from task achievement. Hence, much of the behavior within this climate can be construed as 'inauthentic.'
- (e) The Paternal Climate is characterized best as one in which the principal constrains the emergence of leadership acts from the group and attempts to initiate most of these acts himself. The leadership skills within the group are not used to supplement the principal's own ability to initiate leadership. Accordingly, some leadership acts are not even attempted. In short, little satisfaction is obtained in respect to

either achievement or social needs; hence, Esprit among the members is low.

- (f) The Closed Climate is characterized by a high degree of apathy on the part of all members of the organization. The organization is not 'moving'; Esprit is low because the group members secure neither social-needs satisfaction nor the satisfaction that comes from task achievement. The members' behavior can be construed as 'inauthentic'; indeed, the organization seems to be stagnant.

CHAPTER 2

REVIEW OF LITERATURE AND  
RELATED RESEARCH

Introduction

A review of literature and related research yielded information about both organizational climate and the principal's role in school effectiveness. These variables are treated separately and in their relationship to one another. The concept of organizational climate will be discussed under the following sections: (1) Definitions of Organizational Climate, and (2) Conceptualizations and Measures of Organizational Climate.

The concept of the principal's role in school effectiveness reviews research as it relates to both leadership behaviors of principals and the role of school climate in effective school operation.

Definitions of Organizational Climate

In an article published in the Phi Delta Kappan, Francis Cornell (1955:222) originated the term "organizational climate." Cornell defined organizational climate as:

. . . a blend of perceptions by persons in an organization concerning their jobs or roles in relation to colleagues and their roles within the organization.

In a study dealing with behavior of role participants in a bank setting, Chris Argyris (1958:501) defined organizational climate as a living complexity composed of three related systems or variables: formal organizational procedures, personal needs, and ". . . the complicated pattern of variables associated with the individual's efforts to accommodate his own needs with those of the organization."

Forehand and Gilmer (1964:362) defined organizational climate as:

The set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization.

Halpin (1966:131) suggested 1966 that organizational climate was to the organization what personality was to the individual.

Organizational climate was defined by Tagiuri and Litwin (1968:27) as:

. . . a relatively enduring quality of the internal environment of the organization, that is (a) experienced by its members, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics (or attitudes) of the organization.

Foreman (1968:375) defined climate as involving at least three sets of variables: (1) environmental

variables, such as size and structure; (2) personal variables, such as motivations, attitudes, desires and needs; and (3) outcome variables, such as satisfaction, job motivation and productivity.

A visit to several schools demonstrates that there are major differences in school climates. Halpin (1966:131) noted:

In one school the teachers and the principal are zestful and exude confidence in what they are doing. They find pleasure in working with each other; this pleasure is transmitted to students. . . . In a second school the brooding discontentment of teachers is palpable; the principal tries to hide his incompetence and his lack of direction behind a cloak of authority. . . . And the psychological sickness of such a faculty spills over on the students who, in their own frustration, feed back to teachers a mood of despair. A third school is marked by neither joy nor despair, but by hollow ritual . . . in a strange way the show doesn't seem to be 'for real.'

Hoy and Miskel (1982:185) described climate as:

. . . an end product of the school groups -- students, teachers, administrators -- as they work to balance the organizational and individual aspects of a social system. The end product includes shared values, social beliefs, and social standards.

#### Conceptualization and Measures of Organizational Climate

Hoy and Miskel (1982:215) described organizational climate as consisting of a set of internal characteristics that distinguish one school from another and influence the behavior of the people in a school. The four important

conceptualizations of organizational climate as outlined by Hoy and Miskel (1982:215) included: (1) the climate of interaction among teachers or between teachers and principals; (2) the climate which portrays schools as lying along a continuum of participative to exploitive-authoritative managerial systems; (3) the conceptualization which views school climate in terms of a continuum of control over students, from humanistic to custodial; and (4) the conceptualization of school climate in terms of development and control processes.

The conceptualization of organizational climate as the interaction among teachers, or between teachers and principals, has been described as open or closed in the study by Halpin and Croft (1962:175). Halpin and Croft mapped the organizational climate of schools when they observed that (1) schools differed markedly in their feel; (2) the concept of morale did not provide an index of this feel; (3) "ideal" principals who were assigned to schools where improvement was needed were immobilized by the faculty; and (4) the topic of organizational climate generated interest.

In their 1962 study, Halpin and Croft developed a descriptive questionnaire to identify important aspects of teacher-teacher and teacher-principal interactions. Each of the nearly one thousand items which were composed were designed to answer the basic question: To what extent is



this true of your school? From the original bank of items, they developed a final set of sixty-eight items called the Organizational Climate Description Questionnaire (OCDQ). The sixty-eight items were grouped into eight factors, or subtests. Four of the subtests referred to the characteristics of the faculty group, and four described various components of teacher-principal interactions. The eight dimensions or subtests are presented and defined in Chapter 3.

Taken together, the eight subtests designed by Halpin and Croft created a profile of the climate in terms of the eight dimensions. The scores of all subtests and schools in the Halpin and Croft study were standardized so that the mean score was fifty and the standard deviation was ten.

Not only were the profiles of each of the seventy-one elementary schools in the Halpin and Croft study mapped, but also identified, through factor analysis, were six basic school climates which were arrayed along a rough continuum from open to closed: open, autonomous, controlled, familiar, paternal, closed (Halpin, 1966:150-181). School climates are presented and defined in Chapter 3.

The conceptualization of climate as an interaction among teachers, or between teachers and principals, can be described as open or closed and has been measured most often with the OCDQ (Hoy, 1982:186).

As defined by the OCDQ, the climate of a school is clearly a description of the perceptions of the faculty. Halpin stated simply that the climate is open (or closed) if the faculty describes it as such.

Researchers such as Brown (1965:7) and Watkins (1968: 52) questioned the usefulness of the six climates identified by Halpin and Croft. Halpin and Croft (1966:104) themselves had some reservations concerning the middle climates:

We have said that these climates were ranked in respect to openness versus closedness. But we fully recognize how crude this ranking is. As in the case of most ranking or scaling, we are much more confident about the climates described at each end of the listing than we are about those described in between.

John H.M. Andrews (1965:333), in one of the most comprehensive validity studies of the OCDQ, concluded that the eight dimensions of the OCDQ possessed good construct validity but that the designation of discrete climate categories added nothing to the meaning already present in the subtests, and in fact, detracted from the OCDQ. Hoy and Miskel (1982:191) agreed that the discrete middle-climate classifications were less convincing than the extremes. They did argue, however, that the open-closed continuum did provide a good theoretical description of climate, and did map that climate.

One way of determining the relative openness or closedness of a set of school climates was described by Hoy and Miskel in the following climate openness index:

$$\begin{aligned}\text{OPENNESS INDEX} &= \text{Thrust Score} \\ &+ \text{Esprit Score} \\ &- \text{Disengagement Score}\end{aligned}$$

According to Hoy and Miskel (1982:191):

The higher the index, the more open the climate of the school. Recall that these three OCDQ subtests are the most important characteristics of open and closed climates, and when used together, they tend to identify the open and closed profiles described by Halpin and Croft. When schools with open and closed climates are contrasted, open climates tend to be higher in esprit, thrust, and consideration and lower in disengagement, hindrance, aloofness, and production emphasis.

The OCDQ has also been criticized by researchers like Carver and Sergiovanni (1969:71-81) because it was not well suited to study large, urban, or secondary schools. This criticism was based in part on Halpin and Croft's "prototypic profile method" of determining climate since the norms used to classify the schools using the prototypic profile method were based on seventy-one elementary schools in the original study.

Hoy (1972b:41-51) argued, however, that although the prototypic profiles method of designating discrete climates among secondary schools was not especially useful, the openness index did provide a means of examining relative openness and closedness. Furthermore, all the subtests of the OCDQ measured important components of the

organizational climates of secondary as well as elementary schools. In summarizing the usefulness of the OCDQ, Hoy and Miskel (1982:192-193) stated:

In conclusion, the OCDQ seems to be a useful device for charting school climate in terms of teacher-teacher and teacher-principal relationships, which can be considered social standards or shared agreements concerning the acceptability of behavior. The eight subtests constitute what appear to be valid and reliable measures of school climate. These subtests form a profile of a school that can be used for research, evaluation, inservice work, or self-analysis. In addition, the openness index provides a means of comparing one's school with others along an open-closed continuum. Halpin and Croft suggest that openness might be a better criterion of a school's effectiveness than many that have entered the field of educational administration and masquerade as criteria. Although some may argue about whether or not an open climate is good, the OCDQ does provide a 'personality battery' of scales for diagnostic as well as prescriptive purposes.

A second conceptualization of climate is one which portrays schools as lying along a continuum of participative to exploitive-authoritative managerial systems, which may be operationalized by a profile of organizational characteristics.

Likert (1961:4) developed a continuum along which organizations can be placed according to the character of their superordinate-subordinate relationships. The organizational types, or managerial systems, fall into four categories: System 1 -- Exploitive-Authoritative, System 2 -- Benevolent-Authoritative, System 3 -- Consultive, and System 4 -- Participative.

Likert's Profile of Organizational Characteristics (POC) was originally used to study business organizations. Likert was interested in how changes in the climate of the organization were related to objective performance criteria, such as productivity, earnings, and employee satisfaction. Likert (1961:123) concluded that, in general, the closer a profile approached the participative (System 4), the greater the likelihood of superior performance.

A third way to conceptualize the climate of the school is to review the dominant patterns the teachers and principals use to control students. Willard Waller (1932) studied the school as a social system, and called attention to the importance of pupil control with regard to both structural and normative aspects of school culture.

There is little question that pupil control is a central aspect of school life. Research initiated by Donald J. Willower, Terry I. Eidell, and Wayne K. Hoy (1969:110-127) at Pennsylvania State University provided a basis for the perspective that the concept of pupil control could be used to distinguish among school climates.

Willower and the other Penn State researchers were the first to outline a pupil-control continuum from custodial to humanistic. They described the pupil-control ideology as how school officials viewed the students.

The pupil-control ideology (PCI) (Appleberry and Hoy, 1969:74-85) was developed in order to operationalize the concept of a pupil-control orientation along the custodial-humanistic continuum. The PCI measures pupil-control orientation by pooling the individual ideologies of professional staff members of the school. This represents an estimate of the model orientation of the school and provides an index of the degree of custodialism (or humanism) with respect to the pupil-control orientation of the school.

Research by Hoy (1972a:38-51) concluded that schools characterized by a humanistic pupil-control orientation would foster opportunities for meaningful and authentic social relations, producing students with a positive commitment to their schools. A custodial pupil-control orientation, according to Hoy, should provide an atmosphere that limits identification with teachers and the school and may indeed produce a sense of alienation among students.

The results of Hoy's study (1972a) also indicated that the principals have an important role in the development of climates conducive to student commitment and sense of power. Schools with principals who were high in thrust and those characterized by low hindrance had significantly less student alienation in terms of powerlessness. Hoy's research concluded that the more custodial and closed the

school climate, the greater the student sense of alienation.

The fourth conceptualization and measure of organizational climate is based on a need-press model to explain behavior. As early as 1938, Henry A. Murray stressed the necessity of explaining behavior as an outcome of the relationship between the individual and his or her environment. Murray's work was based on the research of Kurt Lewin (1935) who formulated that behavior (B) was a function (f) of the interaction of personality (P) and environment (E). This was expressed by the formula  $B=f(P \times E)$ . Environmental stresses were defined by Murray (1938) as the external situational counterparts to internalized personality needs. Behavior in the environment was described as a function of the congruence between need and press.

Based on the thirty basic needs identified by Murray, George G. Stern and Carl R. Steinhoff (1965) developed the organizational climate index (OCI) for use in public schools.

Stern (1970:271-273) defined development press and control press as follows:

The term 'development press' refers to an organizational climate that stresses intellectual activity, achievement, practicality, respect for individual integrity, and concern for procedural orderliness. The term 'control press,' on the other hand, refers to an organizational climate

that is characterized by high levels of constraint and restrictiveness.

The OCI allows a profile of organizational climate to be drawn with a school's scores on the six first-order factors.

The four types of organizational climates which Stern and Steinhoff theorized could be conceptualized by cross-partitioning the development-press and control-press axes.

Owens and Steinhoff (1969:252-263) suggested that research indicated that most public schools fell into quadrants II and IV.

Hoy and Miskel (1982:214) summarized the importance of school climate by explaining:

Students' sense of powerlessness, meaninglessness and normlessness can be identified as basic dimensions of alienation and analyzed in terms of organizational climate characteristics. In general, although other variables affect the level of alienation in a school, the more open or humanistic the climate, the less student alienation there is. Strategies can be developed for changing the climates of schools.

#### The Principal's Role in School Effectiveness

Many of the researchers on effective schools (Brookover and Lezotte, 1977; Edmonds, 1979; Hoover, 1978; Phi Delta Kappa, 1980; and Weber, 1971) have emphasized the importance of the school principal in bringing about high levels of student achievement.



One of the first researchers to provide an alternative to Coleman's critical 1966 conclusion that schools did not make a difference was Weber (1971). Weber's interviews and observations at inner-city schools in New York, Los Angeles and Kansas City revealed that in successful schools there was a decided emphasis on reading; careful and frequent evaluation of pupil progress; and a pleasant, orderly and quiet atmosphere. Leadership appeared to be a significant factor; school administrators set the tone for the school and assumed responsibility for instruction and allocation of resources to reach school goals. Process-outcome research like Weber's focused on school processes which resulted in improved student achievement.

Brookover et al. (1979:143-144) identified differences among schools with students from the same SES levels and cited some results of comparisons between high- and low-achieving schools:

Teachers and principals in higher achieving schools express the belief that students can master their academic work, and that they expect them to do so, and they are committed to seeing that their students learn to read, and do mathematics, and other academic work. These teachers' and principals' expectations are expressed in such a way that the students perceive that they are expected to learn and the school academic norms are recognized as setting a standard of high achievement.

Of leadership differences, Brookover et al. concluded:

Lack of pressure relative to teacher performance and little emphasis on increased achievement

appeared to differentiate low achieving schools from those more effective.

In the descriptions of Brookover et al. there was a shift in perspective from the material aspects of the school, such as Coleman had researched, to a cluster of attitudes and perceptions which affected student achievement.

Another major research study which focused on school processes and school leadership was Secondary Schools and Their Effects on Children (Rutter and others, 1979). Fifteen hundred junior high age students in twelve inner-city schools of London were assessed on school entry variables at ten years of age and reassessed at exit three years later. Schools were identified as either schools that appeared to exert a positive influence on pupil progress or those less successful based on an analysis of the standardized test scores.

During observations, interviews and surveys conducted over two years, the researchers concluded that the influence of the head teacher (supervisor) was very considerable in bringing about high levels of student achievement.

In summarizing eight research studies of positive leadership behaviors, Sweeney (1982:350) stated:

The evidence clearly indicates that principals do make a difference, for leadership behavior was positively associated with school outcomes in each of the eight studies. Of equal importance

was the emergence of specific leadership behaviors consistently associated with effective schools.

Sweeney suggested that effective schools have effective leaders, and that much of what the school did to promote achievement was within the principal's power to influence and control.

In summarizing, Sweeney (1982:349) identified six leadership behaviors of principals that were consistently associated with effective schools. They were:

- (1) **Emphasize Achievement:** They give high priority to activities, instruction, and materials that foster academic success. Effective principals are visible and involved in what goes on in the school and its classrooms. They convey to teachers their commitment to achievement.
- (2) **Set Instructional Strategies:** They take part in instructional decision making and accept responsibility for decisions about methods, materials, and evaluation procedures. They develop plans for solving students' learning problems.
- (3) **Provide an Orderly Atmosphere:** They do what is necessary to ensure that the school's climate is conducive to learning; it is quiet, pleasant, well-maintained.
- (4) **Frequently Evaluate Student Progress:** They monitor student achievement on a regular basis. Principals set expectations for the entire school and check to make sure those expectations are being met. They know how well their students are performing as compared to students in other schools.
- (5) **Coordinate Instructional Programs:** They interrelate course content, sequences of objectives, and materials in all grades. They see what goes on in the classroom has

bearing on the overall goals and program of the school.

- (6) **Support Teachers:** Effective principals communicate with teachers about goals and procedures. They support teachers' attendance at professional meetings and workshops, and provide inservice that promotes improved teaching.

More recent researchers have forwarded the proposition that schools are rarely effective unless the principal is a proficient instructional leader.

Three recent studies have examined the role of the principal from a variety of perspectives. They provide evidence of the influence principals exert on their school's climate and their students' progress.

A study by Richard L. Andrews and others (1986) in Seattle disclosed a statistical correlation between student achievement gains in reading and mathematics on one hand and teachers' perceptions of their principals as instructional leaders on the other. This correlation was specifically strong in schools with a high proportion of low-income students. The study underscored the importance of a principal's high visibility around the school in creating and sustaining a context for effective instruction.

William Rutherford and others (1983) conducted a study directed primarily at developing a typology of the interventions by which principals promote instructional improvement efforts among their teachers. The findings

indicated that principals were most successful at implementing improvements in practice if they clearly communicated their expectations, provided technical assistance and monitored the results.

Thomas D. Bird and Judith Little (1985) performed extensive case studies in five secondary schools and then surveyed administrators, department heads and teachers in these five and three additional schools to gather further information about leaders' expectations and practices. Their findings suggested that effective instructional leadership consisted in cultivating and sustaining norms of civility, collegiality and continuous improvement.

Ellis (1986), in the National Association of Elementary School Principals publication, Research Roundup, summarized the importance of the principal as instructional leader when he stated:

Taken as a whole, these studies do not provide any single prescription or formula for effective instructional leadership. Nevertheless, we can derive three useful generalizations from their findings: (1) effective instructional leaders set high expectations and reinforce these expectations through their daily interactions with staff and students; (2) effective instructional leaders are responsive to the socioeconomic context of their schools and communities; and (3) such leaders cultivate norms of collegiality and mutual trust among their teachers.

Further, the studies demonstrate that a committed, caring principal can make all the difference in the world between a school where students and teachers merely 'put in time' and a thriving and successful institution where

principal, teachers and students enthusiastically participate in a common vision of excellence.

Squires et al. (1983), in their research of effective schools, suggested that in effective schools active leadership created a school climate in which success was expected, academics were emphasized, and the environment was orderly. Squires et al. argued that teachers and administrators in effective schools emphasized a curriculum of reading, writing and math in a businesslike environment that promoted and reinforced disciplined instruction that took up much of the school day. Squires et al. believed that students could not be successfully engaged in academic work in a disorderly environment and that effective schools generally recognized a uniform standard of discipline, which was enforced fairly by administrators and teachers.

Squires et al. (1983:6) argued that student success was clearly related to school climate which was, in turn, related to leadership. They stated:

Three leadership processes build and maintain a school's climate: modeling, feedback, and consensus building. Leadership generally comes from the principal, although teachers may provide it as well. Principals, in particular, model appropriate behavior, which supports a positive school climate. Principals support inservice programs, monitor classrooms and supervise instruction, and provide time for teachers to plan together. By doing so, they set the tone and focus of the school.

In summary, the research indicated that principals did make a difference. The implications were that school

effectiveness was enhanced by principals who emphasized achievement, set instructional strategies, provided an orderly school atmosphere, frequently evaluated pupil progress, coordinated instruction and supported teachers.

Sweeney (1982:350) argued that taken as a whole, research results suggested that principals who emphasized instruction, were assertive, results-oriented, and able to develop and maintain an atmosphere conducive to learning made a difference -- one reflected in elevated school outcomes.

Sweeney recommended that there was an obvious need to continue, even intensify, school effectiveness research. Sweeney's recommendations were to focus future research on the so-called average schools and to clearly define and describe instructional leadership behaviors since in most cases they were stated in vague and general terms.

This study was undertaken to gain information through measurement and comparison about the differences between the organizational climate scores of Wyoming elementary schools, and how such differences related to principal ratings on the leadership behaviors of: supports teaching, emphasizes achievement, and provides orderly atmosphere. The next topic to be considered will be the procedures used in the study.

## CHAPTER 3

## PROCEDURES

The problem of this study was to determine if there was a significant difference between the organizational climate scores of Wyoming elementary schools, and how such differences related to principals' ratings on identified leadership behaviors.

This chapter will describe the nature of the population surveyed, the sampling procedures used, the categories investigated, the data collection methods used, the methods used for organization of data, the hypotheses, the analysis of data and the precautions taken for accuracy.

Population Description and  
Sampling Procedure

Cochran (1977) cited four principal advantages of sampling as compared with complete enumeration: (1) reduced cost, (2) greater speed, (3) greater scope, and (4) greater accuracy.

This study was limited to a study of a sample of Wyoming elementary schools. Only public schools were included in the study. A random sample of fifty Wyoming elementary schools was drawn from a listing of eligible



public schools who volunteered to participate in the study. Only elementary schools with seven or more full-time elementary teachers were sampled. Appendix A shows the 159 eligible elementary schools in Wyoming as well as the number of full-time classroom teachers employed at each school. Of those eligible, sixty-three Wyoming elementary schools volunteered to participate in the study. Of that number, fifty elementary schools, representing 31.8 percent of the 159 eligible schools in Wyoming, were randomly selected to be included in the study.

District teachers in sample schools were asked to complete a school checklist which measured the teachers' perceptions of the school principal on the following three leadership behaviors: (1) Emphasizes Achievement, (2) Provides Orderly Atmosphere, and (3) Supports Teachers. The results of the school checklist were used to rank the principal as high, medium or low on each of the three leadership behaviors listed above.

#### Categories for Investigation

The purpose of this investigation was to determine the relationship between organizational climate scores and the teachers' rating of principals on identified leadership behaviors. In addition, the survey results revealed a composite score indicative of each school's organizational climate. These scores were compared to analyze for

interaction between the climate scores of sample schools and school size.

Biographical data were collected concerning the school principal's age, gender, total years of teaching experience, and total years of administrative experience (see Appendix C). Data were also collected concerning school size.

The ratings of principals were provided by district teachers who were asked to complete a school checklist which measured the teachers' perceptions of the school principal on the three leadership behaviors: (1) Emphasizes Achievement, (2) Provides Orderly Atmosphere, and (3) Supports Teachers. The ratings were used to rank principals as being high, medium, or low in each of the leadership behaviors listed above. High and low rankings were assigned by the researcher using plus or minus one standard deviation from the mean. (A copy of the school checklist is presented in Appendix B.)

#### Method of Collecting Data

After identifying sample schools in Wyoming, a letter of introduction (see Appendix G) was forwarded to the superintendent/supervisor of sample elementary schools three weeks prior to the proposed administration date of the OCDQ and school checklist.

The letter of introduction explained the need and purpose of the study as well as the benefits to participating districts. Each superintendent/supervisor also received sample evaluation instruments, sample biographical data sheets, a letter of endorsement from the Wyoming Association of Elementary School Principals (see Appendix D) and a self-addressed, stamped envelope.

Each superintendent/supervisor was asked to complete a response checklist (see Appendix E) and return it in the self-addressed, stamped envelope. They were also invited to request more information if there were unanswered questions or unresolved concerns hampering their ability to make a decision on the request for this study's execution in their respective school district.

Each principal in sample schools was asked to respond to a biographical data sheet to provide information about their gender, age, total years of teaching experience and total years of administrative experience. Data were also collected concerning school size.

Teachers in the sample schools were asked to respond to the Organizational Climate Description Questionnaire (see Appendix F). The questionnaire was administered by the researcher during an after-school meeting called by the school administration. During this on-site visit by the researcher, the district teachers were also asked to

complete the school checklist. The principal was asked to complete the biographical data sheet.

The Organizational Climate Description Questionnaire (OCDQ) was developed by A.W. Halpin and D.B. Croft (1966). The instrument was constructed and has been used since 1966 to portray the organizational climate of elementary schools. The OCDQ is composed of sixty-eight Likert-type items which teachers and principals can use to describe the climate of their school. The questionnaire is given in a group situation; it requires no more than thirty minutes for administration. The sixty-eight items in the OCDQ are assigned to eight subtests which were delineated by factor-analytic methods. Four of these subtests pertain to characteristics of the faculty as a group, the other four to characteristics of the principal as a leader. From the scores on the eight subtests, a profile or psychograph for each school may be constructed which depicts the school's organizational climate. By comparing the profiles of different schools, the distinguishing features of their respective organizational climates can be drawn. Furthermore, by analyzing the profile for a given school, the quality of its climate can be estimated. The eight subtests are as follows:

(A) Characteristics of the Group:

- (1) Disengagement
- (2) Hindrance

- (3) Esprit
- (4) Intimacy
- (B) Behavior of the Leader:
  - (5) Aloofness
  - (6) Production Emphasis
  - (7) Trust
  - (8) Consideration

The data can identify six organizational climates which may be arrayed along a continuum defined at one end by an "Open Climate," and at the other, by a "Closed Climate." Following is a description of Halpin and Croft's six climates (1963:2-3):

(1) The Open Climate describes an energetic, lively organization which is moving toward its goals, and which provides satisfaction for the group members' social needs. Leadership acts emerge easily and appropriately from both the group and the leader. The members are preoccupied disproportionately with neither task achievement nor social-needs satisfaction; satisfaction on both counts seems to be obtained easily and almost effortlessly. The main characteristic of this climate is the 'authenticity' of the behavior that occurs among all the members.

(2) The Autonomous Climate is described as one in which leadership acts emerge primarily from the group. The leader exerts little control over the group members; high Esprit results primarily from social-needs satisfaction. Satisfaction from task achievement is also present, but to a lesser degree.

(3) The Controlled Climate is characterized best as impersonal and highly task-oriented. The group's behavior is directed primarily toward task accomplishment, while relatively little attention is given to behavior oriented to social-needs satisfaction. Esprit is fairly

high, but it reflects achievement at some expense to social-needs satisfaction. This climate lacks openness, or 'authenticity' of behavior, because the group is disproportionately preoccupied with task achievement.

(4) The Familiar Climate is highly personal, but under-controlled. The members of this organization satisfy their social needs, but pay relatively little attention to social control in respect to task accomplishment. Accordingly, Esprit is not extremely high simply because the group members secure little satisfaction from task achievement. Hence, much of the behavior within this climate can be construed as 'inauthentic.'

(5) The Paternal Climate is characterized best as one in which the principal constrains the emergence of leadership acts from the group and attempts to initiate most of these acts himself. The leadership skills within the group are not used to supplement the principal's own ability to initiate leadership. Accordingly, some leadership acts are not even attempted. In short, little satisfaction is obtained in respect to either achievement or social needs; hence, Esprit among the members is low.

(6) The Closed Climate is characterized by a high degree of apathy on the part of all members of the organization. The organization is not 'moving'; Esprit is low because the group members secure neither social-needs satisfaction nor the satisfaction that comes from task achievement. The members' behavior can be construed as 'inauthentic'; indeed, the organization seems to be stagnant.

All participants were asked to respond to the sixty-eight statements using a response of 1 to 4 (1 = rarely occurs, 2 = sometimes occurs, 3 = often occurs, and 4 = very frequently occurs).

The relative openness or closedness of the set of school climates in the sample was determined by use of a

climate openness index described by Hoy and Miskel (1982: 191):

$$\begin{aligned} \text{OPENNESS INDEX} &= \text{Thrust Score} \\ &+ \text{Esprit Score} \\ &- \text{Disengagement Score} \end{aligned}$$

Validity and reliability of the OCDQ instrument were established by Halpin and Croft (1962:55-57). Reliability was graphically displayed by those authors as shown in the following table:

Table 1. "R" technique: Three-factor varimax rotational solution for subtest scores, by school (N=71).

| OCDQ Subtest           | Profile Factors |      |      |       |
|------------------------|-----------------|------|------|-------|
|                        | I               | II   | III  | h     |
| 1. Disengagement       | -.86            | .00  | -.33 | .85   |
| 2. Hindrance           | -.13            | .50  | .34  | .38   |
| 3. Esprit              | .79             | -.28 | -.04 | .71   |
| 4. Intimacy            | -.07            | -.85 | .22  | .77   |
| 5. Aloofness           | .08             | -.09 | .80  | .66   |
| 6. Production Emphasis | -.16            | .76  | .02  | .61   |
| 7. Thrust              | .64             | .08  | -.47 | .64   |
| 8. Consideration       | .02             | -.07 | -.85 | .73   |
| Factor Value           | 1.83            | 1.65 | 1.86 |       |
| <hr/>                  |                 |      |      |       |
| % of Variance          | .23             | .21  | .23  | = 67% |

Halpin and Croft (1962:57) explained:

. . . Furthermore, in the three-factor solution, the high communalities found for each of the individual subtests provide estimates -- and encouragingly high estimates -- of the reliability of the eight subtests.

"The communality represents a lower-bound, or a highly conservative, estimate of the reliability" (Fruchter, 1954:47).

The School Checklist used as a measure of teachers' perceptions about principals' leadership behaviors was developed from the work of the Council of Basic Education. The original instrument was based directly on effective school research and its validity was face and content related. The Checklist contained thirty items -- ten questions on each of the three leadership behaviors: (1) Emphasizes Achievement, (2) Provides Orderly Atmosphere, and (3) Supports Teachers.

The scales were scored with a scale value of: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, and Strongly Disagree = 1.

Based on teachers' ratings on the School Checklist, principals were ranked by the researcher as being high, medium, or low on each of the leadership behaviors. Rankings were assigned by computing a mean score and standard deviation for each of the leadership behaviors. High and low rankings were assigned by the researcher using plus or minus one standard deviation from the mean. The rankings are shown in Table 2.

These rankings, along with the attribute variables of principal age, gender, and total years of teaching and administrative experience served as independent variables.



School size was also analyzed as an independent variable. The dependent variables were the "general openness" score derived from the Organizational Climate Description Questionnaire as well as the OCDQ subtest scores for characteristics of faculty behavior and characteristics for principal behavior.

Table 2. Rankings assigned for leadership behaviors.

| Leadership Behavior         | Mean | SD  | Rankings |           |       |
|-----------------------------|------|-----|----------|-----------|-------|
|                             |      |     | Low      | Medium    | High  |
| Supports Teachers           | 39.0 | 6.5 | <32.5    | 32.5-45.5 | >45.5 |
| Emphasizes Achievement      | 36.0 | 5.5 | <30.5    | 30.5-41.5 | >41.5 |
| Provides Orderly Atmosphere | 39.6 | 4.8 | <35.2    | 35.2-44.8 | >44.8 |

#### Method of Organizing Data

The data from the Organizational Climate Description Questionnaire were forwarded to Montana State University for scoring. The data were organized and displayed for reference within the text utilizing tables constructed to answer the questions proposed and to fulfill the purposes of the problem.

Differences in OCDQ scores among sample schools were compared according to principal's ratings on identified leadership behaviors as well as principal's age, gender,

total years administrative experience, total years teaching experience and school size. The variables were analyzed for interaction.

### Hypotheses

This study investigated eighteen research hypotheses. All statistical hypotheses were non-directional and were tested at a .05 alpha level.

Hypotheses 1-6, 7-12, and 13-18 were arranged sequentially in the following categories: (1) Supports Teachers, (2) Emphasizes Achievement, and (3) Provides Orderly Atmosphere.

Each of the eighteen hypotheses were also arranged sequentially using the following dependent variables, all of which were derived from the Organizational Climate Description Questionnaire: (1) "general openness" score, (2) characteristics of principal behavior, and (3) characteristics of faculty behavior.

Hypotheses in each category above were listed sequentially as follows: (1) Interaction Hypothesis, and (2) Main Effects Hypothesis (row).

Since the main effects (column) were constant, (i.e., high, middle, or low) in the leadership behaviors, main effects (column) were tested on each two-way analysis of variance; however, they were not replicated as separate

hypotheses. If the data were determined to be disordinal, main effects were not tested.

#### Research Hypothesis Number 1

There will be no significant interaction between the ratings of principals on "Supports Teachers" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 2

In the category of "Supports Teachers," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 3

There will be no significant interaction between the ratings of principals on "Emphasizes Achievement" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of

teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 4

In the category of "Emphasizes Achievement," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 5

There will be no significant interaction between the ratings of principals on "Provides Orderly Atmosphere" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 6

In the category "Provides Orderly Atmosphere," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of

teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 7

There will be no significant interaction between the ratings of principals on "Supports Teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principal behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 8

In the category of "Supports Teachers," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 9

There will be no significant interaction between the ratings of principals on "Emphasizes Achievement" and the following set of independent variables as determined by

OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 10

In the category of "Emphasizes Achievement," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 11

There will be no significant interaction between the ratings of principals on "Provides Orderly Atmosphere" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 12

In the category "Provides Orderly Atmosphere," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 13

There will be no significant interaction between the ratings of principals on "Supports Teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 14

In the category of "Supports Teachers," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's

total years of administrative experience, and (5) school size.

Research Hypothesis Number 15

There will be no significant interaction between the ratings of principals on "Emphasizes Achievement" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 16

In the category of "Emphasizes Achievement," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Research Hypothesis Number 17

There will be no significant interaction between the ratings of principals on "Provides Orderly Atmosphere" and the following set of independent variables as determined by



OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Research Hypothesis Number 18

In the category "Provides Orderly Atmosphere," there will be no significant difference between row means on the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behavior: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

#### Analysis of Data

Data collections in this study were subjected to a two-way analysis of variance. The dependent measures were group mean "general openness" scores from the Organizational Climate Description Questionnaire as well as OCDQ subtest scores for characteristics of faculty behavior and characteristics of principal behavior.

To adequately guard against the rejection of a true null hypothesis, Type I error, a .05 level of significance was selected.

The Organizational Climate Description Questionnaire (OCDQ) also provided eight subtest scores for analysis as follows (Halpin, 1966):

Teachers' Behavior:

- (1) Disengagement refers to the teachers' tendency to be 'not with it.' This dimension describes a group which is 'going through the motions,' a group that is 'not in gear' with respect to the task at hand. It corresponds to the more general concept of anomie as first described by Durkheim (1930). In short, this subtest focuses upon the teachers' behavior in a task-oriented situation.
- (2) Hindrance refers to the teachers' feeling that the principal burdens them with routing duties, committee demands, and other requirements which the teachers construe as unnecessary 'busywork.' The teachers perceive that the principal is hindering rather than facilitating their work.
- (3) Esprit refers to morale. The teachers feel that their social needs are being satisfied, and that they are, at the same time, enjoying a sense of accomplishment in their job.
- (4) Intimacy refers to the teachers' enjoyment of friendly social relations with each other. This dimension describes a social-needs satisfaction which is not necessarily associated with task-accomplishment.

Principal's Behavior:

- (5) Aloofness refers to behavior by the principal which is characterized as formal and impersonal. He 'goes by the book' and prefers to be guided by rules and policies rather than to deal with the teachers in an informal, face-to-face situation. His behavior, in brief, is universalistic rather than particularistic; nomothetic rather than idiosyncratic. To maintain this style, he keeps himself -- at least, 'emotionally' -- at a distance from his staff.

- (6) Production Emphasis refers to behavior by the principal which is characterized by close supervision of the staff. He is highly directive and plays the role of a 'straw boss.' His communication tends to go in only one direction, and he is not sensitive to feedback from the staff.
- (7) Thrust refers to behavior by the principal which is characterized by his evident effort in trying to 'move the organization.' Thrust behavior is marked not by close supervision, but by the principal's attempt to motivate the teachers through the example which he personally sets. Apparently, because he does not ask the teachers to give of themselves any more than he willingly gives of himself, his behavior, though starkly task-oriented, is nonetheless viewed favorably by the teachers.
- (8) Consideration refers to behavior of the principal which is characterized by an inclination to treat the teachers 'humanly,' to try to do a little something extra for them in human terms.

Data for each of the Organizational Climate Description Questionnaire (OCDQ) subtests are displayed by school in Appendix H.

The biographical data sheet for principals was used to determine the four attribute variables for interaction analysis. Data concerning school size were also analyzed for interaction.

#### Precautions Taken for Accuracy

The data generated by this study were analyzed by the use of the computer located at Montana State University in Bozeman, Montana.

## CHAPTER 4

## ANALYSIS OF DATA

The purpose of this study was to determine if there was a difference between the organizational climate scores of Wyoming elementary schools and how such differences related to the ratings of principals on identified leadership behaviors.

Description of Study Population

The population used in this study included classroom teachers under contract at one of the public schools in Wyoming. The study sample was restricted to those public schools with seven or more full-time elementary teachers.

Sixty-three Wyoming elementary schools volunteered to participate in the study. Of that number, fifty elementary schools, representing 31.8 percent of the 159 eligible schools in Wyoming, were randomly selected to be included in the sample. Two questionnaires were completed by 716 classroom teachers during after-school faculty meetings called by the school administration. During the same meetings, building principals in the fifty sample schools responded to biographical data sheets. This biographical information provided a basis for comparison between schools

with differing results on school climate and identified leadership ratings of the principals by classroom teachers. The principals' characteristics which were included in this study were gender, age, and total years of teaching and administrative experience. Information was also gathered on school size. Those data are displayed in the tables which follow. The gender of principal respondents is displayed in Table 3.

Table 3. Gender of sample principals.

| <u>Male</u> |         | <u>Female</u> |         | <u>Total</u> |         |
|-------------|---------|---------------|---------|--------------|---------|
| Number      | Percent | Number        | Percent | Number       | Percent |
| 43          | 86      | 7             | 14      | 50           | 100     |

Table 4 displays the age group description of the principals used in this study.

Table 4. Age group description of sample principals.

| <u>Age Group<br/>(in years)</u> | <u>Number</u> | <u>Percent</u> |
|---------------------------------|---------------|----------------|
| 35 or younger                   | 12            | 24             |
| 36-46                           | 27            | 54             |
| 47 or older                     | 11            | 22             |
| Total                           | 50            | 100            |

The total number of years of teaching experience represented by the sample principals is displayed in Table 5.

Table 5. Sample principals' total years of teaching experience.

| Teaching Experience<br>(in years) | Number | Percent |
|-----------------------------------|--------|---------|
| 5 or less                         | 13     | 26      |
| 6-10                              | 24     | 48      |
| 11 or more                        | 13     | 26      |
| Total                             | 50     | 100     |

The sample principals' total number of years of administrative experience is displayed in Table 6.

Table 6. Sample principals' total years of administrative experience.

| Administrative<br>Experience<br>(in years) | Number | Percent |
|--------------------------------------------|--------|---------|
| 5 or less                                  | 17     | 34      |
| 6-10                                       | 16     | 32      |
| 11 or more                                 | 17     | 34      |
| Total                                      | 50     | 100     |

The number of students supervised by sample principals is displayed in Table 7.

Table 7. Number of students supervised by sample principals.

| Students Supervised | Number | Percent |
|---------------------|--------|---------|
| Under 200           | 20     | 40      |
| 200-350             | 16     | 32      |
| 351 or more         | 14     | 28      |
| Total               | 50     | 100     |

### Data Analysis

Tables 8 through 97 and Figures 1 through 18 display the school climate statistical data obtained through computer analysis completed by the computing services at Montana State University, Bozeman, Montana.

Data pertaining to the hypotheses were treated separately. The tables provide descriptive statistics of differences in cell means as well as the analysis of variance data from which the F-scores were computed. Where F-values for interaction were found to be significant at the .05 level, a graphical display (figure) of cell means was included.

### Hypotheses

Hypothesis 1. There will be no significant interaction between the ratings of principals on "supports teachers" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 8, 10, 12, 14 and 16 from which the F-scores were derived. The F-values of 3.381, 1.499, 1.481,

1.815 and 1.693 with p-values of .009, .224, .206, .124 and .150, respectively, indicated no two-way interactions existed between principal's gender, total years of teaching experience, total years of administrative experience, or school size and the ratings of principals on "supports teachers."

As displayed in Table 8, however, there was a two-way interaction between the ratings of principals on "supports teachers" and principal's age as determined by OCDQ general openness scores. The F-value with 4 degrees of freedom was computed to be 3.381. The probability of obtaining that value as a result of chance alone is .009.

Based upon these findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "supports teachers" and principal's age as determined by OCDQ general openness scores. A graphical display of cell means is displayed in Figure 1.

Hypothesis 2. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "supports teachers" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.



Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 8, 10, 12, 14 and 16 from which the F-scores were derived. The F-values of 32.079, 31.439, 29.353, 30.487 and 26.829 all yielded p-values of .000. The probability of obtaining those values as a result of chance alone is .000. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between school climate means (column) on principal's gender, total years of teaching and administrative experience, and school size as they related to the ratings of principals on "supports teachers" as determined by OCDQ general openness scores.

Main effects (row) were found to be significant only as related to school size. An analysis of variance is summarized in Table 16 from which the F-score of 12.038 was derived. With a p-value of .000, the probability of obtaining that value as a result of chance alone is .000. Based upon those findings, it was concluded that there was a significant difference between general openness cell means as they related to school size. Cell mean values are summarized in Tables 9, 11, 13, 15 and 17.

Table 8. Analysis of variance of general openness scores by principal's age and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 9093.283       | 4   | 2273.321    | 16.577 | .000      |
| Age                       | 186.926        | 2   | 93.463      | 0.682  | .506      |
| Supports Teachers         | 8798.372       | 2   | 4399.186    | 32.079 | .000*     |
| <u>2-Way Interactions</u> | 1854.462       | 4   | 463.615     | 3.381  | .009*     |
| Age/Supports              | 1854.462       | 4   | 463.615     | 3.381  | .009*     |
| Explained                 | 10947.744      | 8   | 1368.468    | 9.979  | .000      |
| Residual                  | 86395.883      | 630 | 137.136     |        |           |
| Total                     | 97343.628      | 638 | 152.576     |        |           |

\*Significant at alpha = .05.

Table 9. Cell means of general openness scores by principal's age and "supports teachers" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 165                      | 42.81 | 340             | 42.11 | 134                    | 43.85 | 639                         | 42.66 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 107                                | 36.22 | 444                       | 42.80 | 88              | 49.78 |

<----- Two-Way Cell Means ----->

| <u>Principal's Age</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                        | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                        | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 35 or younger          | 34                                 | 39.26 | 114                       | 43.26 | 17              | 46.88 |
| 36 to 46               | 17                                 | 34.07 | 240                       | 43.02 | 44              | 47.39 |
| 47 or older            | 17                                 | 37.24 | 90                        | 41.60 | 27              | 55.52 |

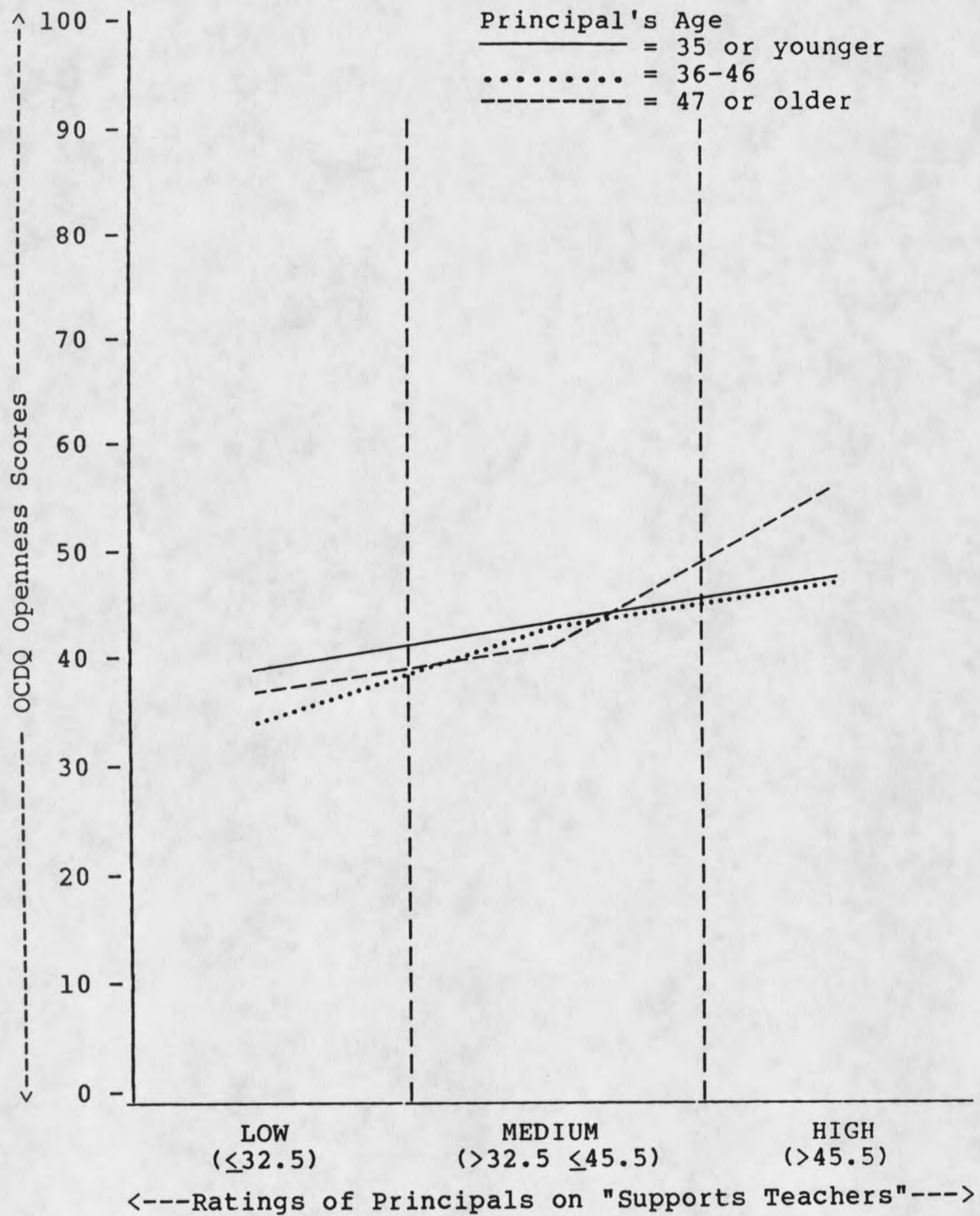


Figure 1. Graphical representation of cell mean values reported in Table 9.

Table 10. Analysis of variance of general openness scores by principal's gender and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 9339.678       | 3   | 3113.226    | 22.499 | .000      |
| Gender                    | 433.321        | 1   | 433.321     | 3.132  | .077      |
| Supports Teachers         | 8700.464       | 2   | 4350.232    | 31.439 | .000*     |
| <u>2-Way Interactions</u> | 414.962        | 2   | 207.481     | 1.499  | .224      |
| Gender/Supports           | 414.962        | 2   | 207.481     | 1.499  | .224      |
| Explained                 | 9754.640       | 5   | 1950.928    | 14.099 | .000      |
| Residual                  | 87588.988      | 633 | 138.371     |        |           |
| Total                     | 97343.628      | 638 | 152.576     |        |           |

\*Significant at alpha = .05.

Table 11. Cell means of general openness scores by principal's gender and "supports teachers" ratings.

| <u>Principal's Gender</u> |       |               |       | <u>Total Population</u> |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       |                         |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 558                       | 42.28 | 81            | 45.28 | 639                     | 42.66 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 107                                | 36.22 | 444                       | 42.80 | 88              | 49.78 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|---------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                           | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                           | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| Male                      | 91                                 | 35.69 | 398                       | 42.73 | 69              | 48.35 |
| Female                    | 16                                 | 39.25 | 46                        | 43.37 | 19              | 55.00 |

Table 12. Analysis of variance of general openness scores by principal's teaching experience and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 9686.613       | 4   | 2421.653    | 17.568 | .000      |
| Teaching Exper.           | 780.257        | 2   | 390.128     | 2.830  | .060      |
| Supports Teachers         | 8092.128       | 2   | 4046.064    | 29.353 | .000*     |
| <u>2-Way Interactions</u> | 816.663        | 4   | 204.166     | 1.481  | .206      |
| Tch.Exper./Supports       | 816.663        | 4   | 204.166     | 1.481  | .206      |
| Explained                 | 10503.276      | 8   | 1312.909    | 9.525  | .000      |
| Residual                  | 86840.352      | 630 | 137.842     |        |           |
| Total                     | 97343.628      | 638 | 152.576     |        |           |

\*Significant at alpha = .05.

Table 13. Cell means of general openness scores by principal's teaching experience and "supports teachers" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 167                                            | 41.75 | 306            | 44.25 | 166               | 40.63 | 639                     | 42.66 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 107                                | 36.22 | 444                       | 42.80 | 88              | 49.78 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|----------------------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                        | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                                        | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                              | 29                                 | 36.79 | 124                       | 42.20 | 14              | 48.07 |
| 6 to 10                                | 42                                 | 38.52 | 208                       | 44.10 | 56              | 49.13 |
| 11 or more                             | 36                                 | 33.08 | 112                       | 41.04 | 18              | 53.17 |



Table 14. Analysis of variance of general openness scores by principal's administrative experience and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 9076.159       | 4   | 2269.040    | 16.382 | .000      |
| Administ. Exper.          | 169.803        | 2   | 84.902      | 0.613  | .542      |
| Supports Teachers         | 8445.485       | 2   | 4222.743    | 30.487 | .000*     |
| <u>2-Way Interactions</u> | 1005.548       | 4   | 251.387     | 1.815  | .124      |
| Admin.Exp./Supports       | 1005.548       | 4   | 251.387     | 1.815  | .124      |
| Explained                 | 10081.708      | 8   | 1260.213    | 9.098  | .000      |
| Residual                  | 87261.920      | 630 | 138.511     |        |           |
| Total                     | 97343.628      | 638 | 152.576     |        |           |

\*Significant at alpha = .05.

Table 15. Cell means of general openness scores by principal's administrative experience and "supports teachers" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       | <u>Total Population</u> |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       |                         |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 165                                          | 41.62 | 273            | 42.24 | 201               | 44.08 | 639                     | 42.66 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 107                                | 36.22 | 444                       | 42.80 | 88              | 49.78 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                          | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                                          | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                                | 33                                 | 36.33 | 113                       | 41.74 | 19              | 50.11 |
| 6 to 10                                  | 50                                 | 37.38 | 194                       | 42.96 | 29              | 45.79 |
| 11 or more                               | 24                                 | 33.67 | 137                       | 43.44 | 40              | 52.52 |

Table 16. Analysis of variance of general openness scores by school size and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 12139.975      | 4   | 3034.994    | 22.682 | .000      |
| School Size               | 3233.619       | 2   | 1616.809    | 12.083 | .000*     |
| Supports Teachers         | 7179.750       | 2   | 3589.875    | 26.829 | .000*     |
| <u>2-Way Interactions</u> | 906.133        | 4   | 226.533     | 1.693  | .150      |
| Sch.Size/Supports         | 906.133        | 4   | 226.533     | 1.693  | .150      |
| Explained                 | 13046.108      | 8   | 1630.764    | 12.188 | .000      |
| Residual                  | 84297.519      | 630 | 133.806     |        |           |
| Total                     | 97343.628      | 638 | 152.576     |        |           |

\*Significant at alpha = .05.

Table 17. Cell means of general openness scores by school size and "supports teachers" ratings.

| <u>School Size</u> |       |                   |       |                    |       | <u>Total</u>      |       |
|--------------------|-------|-------------------|-------|--------------------|-------|-------------------|-------|
| <u>Under 200</u>   |       | <u>200 to 350</u> |       | <u>351 or More</u> |       | <u>Population</u> |       |
| No.                | Mean  | No.               | Mean  | No.                | Mean  | No.               | Mean  |
| 175                | 38.32 | 206               | 45.36 | 258                | 43.44 | 639               | 42.66 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 107                                | 36.22 | 444                       | 42.80 | 88              | 49.78 |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                        | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                        | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| Under 200              | 40                                 | 32.90 | 121                       | 39.28 | 14              | 45.50 |
| 200 to 350             | 25                                 | 36.16 | 140                       | 44.59 | 41              | 53.63 |
| 351 or more            | 42                                 | 39.43 | 183                       | 43.75 | 33              | 46.82 |

Hypothesis 3. There will be no significant interaction between the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 18, 20, 22, 24 and 26 from which the F-scores were derived. The F-values of 2.812, 4.391, 2.434, 3.163 and 0.729 yielded p-values of .025, .013, .046, .014 and .572, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that interactions existed between principal's age, gender, total years of teaching experience, and total years of administrative experience and the ratings of principals on "emphasizes achievement." Cell mean differences are graphically displayed in Figures 2, 3, 4 and 5.

Hypothesis 4. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of

teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 18, 20, 22, 24 and 26 from which the F-scores were derived. The F-values of 13.133, 14.363, 12.720, 12.406 and 11.902 all yielded p-values of .000. The probability of obtaining those values as a result of chance alone is .000. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between the school climate means (column) on school size as they related to the ratings of principals on "emphasizes achievement" as determined by OCDQ general openness scores.

Main effects (row) also were found to be significant related to school size. Analyses of variance are summarized in Tables 20, 22 and 26 from which F-scores of 7.158, 5.370 and 15.294 yielded p-values of .008, .005 and .000, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between general openness cell means as they related to school size. Cell mean values are displayed in Tables 19, 21, 23, 25 and 27.

Table 18. Analysis of variance of general openness scores by principal's age and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 4215.002       | 4   | 1053.750    | 7.262  | .000      |
| Age                       | 327.215        | 2   | 163.607     | 1.127  | .324      |
| Emph. Achvmt.             | 3811.504       | 2   | 1905.752    | 13.133 | .000*     |
| <u>2-Way Interactions</u> | 1632.402       | 4   | 408.101     | 2.812  | .025*     |
| Age/Emph. Achvmt.         | 1632.402       | 4   | 408.101     | 2.812  | .025*     |
| Explained                 | 5847.404       | 8   | 730.926     | 5.037  | .000      |
| Residual                  | 91707.488      | 632 | 145.107     |        |           |
| Total                     | 97554.892      | 640 | 152.430     |        |           |

\*Significant at alpha = .05.

Table 19. Cell means of general openness scores by principal's age and "emphasizes achievement" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 164                      | 42.89 | 343             | 41.87 | 134                    | 43.85 | 641                         | 42.55 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 92                                      | 37.37 | 466                    | 42.84 | 83              | 46.63 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|----------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                            | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                            | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 35 or younger              | 33                                      | 37.76 | 110                    | 43.85 | 21              | 45.90 |
| 36 to 46                   | 49                                      | 37.08 | 251                    | 42.56 | 43              | 43.30 |
| 47 or older                | 10                                      | 37.50 | 105                    | 42.45 | 19              | 54.95 |



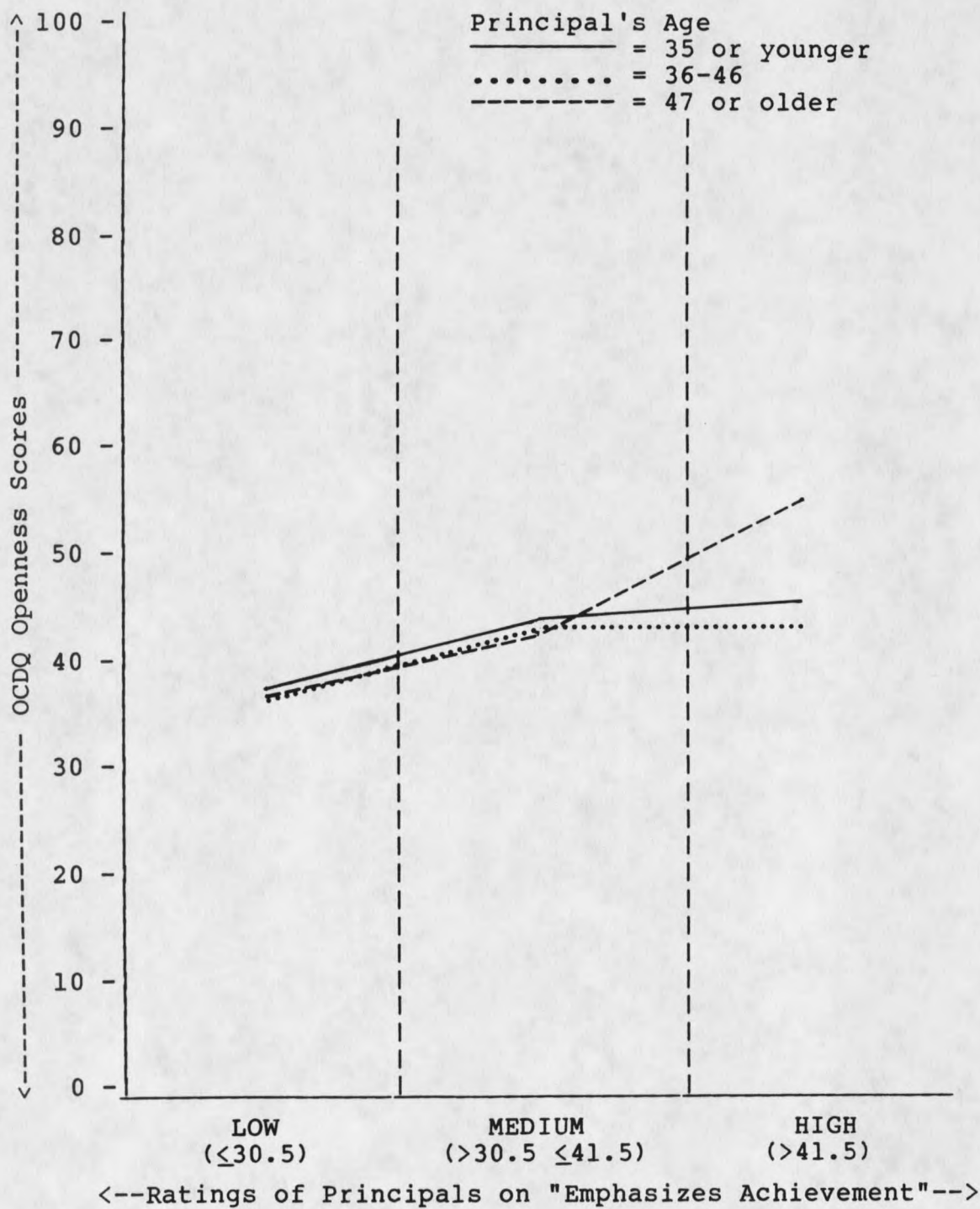


Figure 2. Graphical representation of cell mean values reported in Table 19.

Table 20. Analysis of variance of general openness scores by principal's gender and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 4917.765       | 3   | 1639.255    | 11.392 | .000      |
| Gender                    | 1029.978       | 1   | 1029.978    | 7.158  | .008      |
| Emph. Achvmt.             | 4133.582       | 2   | 2066.791    | 14.363 | .000      |
| <u>2-Way Interactions</u> | 1263.644       | 2   | 631.822     | 4.391  | .013      |
| Gender/Emph.Achvmt.       | 1263.644       | 2   | 631.822     | 4.391  | .013      |
| Explained                 | 6181.409       | 5   | 1236.282    | 8.592  | .000      |
| Residual                  | 91373.484      | 635 | 143.895     |        |           |
| Total                     | 97554.892      | 640 | 152.430     |        |           |

Table 21. Cell means of general openness scores by principal's gender and "emphasizes achievement" ratings.

| <u>Principal's Gender</u> |       |               |       |                         |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       | <u>Total Population</u> |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 561                       | 42.13 | 80            | 45.47 | 641                     | 42.55 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 92                                      | 37.37 | 466                    | 42.84 | 83              | 46.63 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|---------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                           | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                           | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| Male                      | 76                                      | 38.11 | 410                    | 42.24 | 75              | 45.60 |
| Female                    | 16                                      | 33.88 | 56                     | 47.25 | 8               | 56.25 |

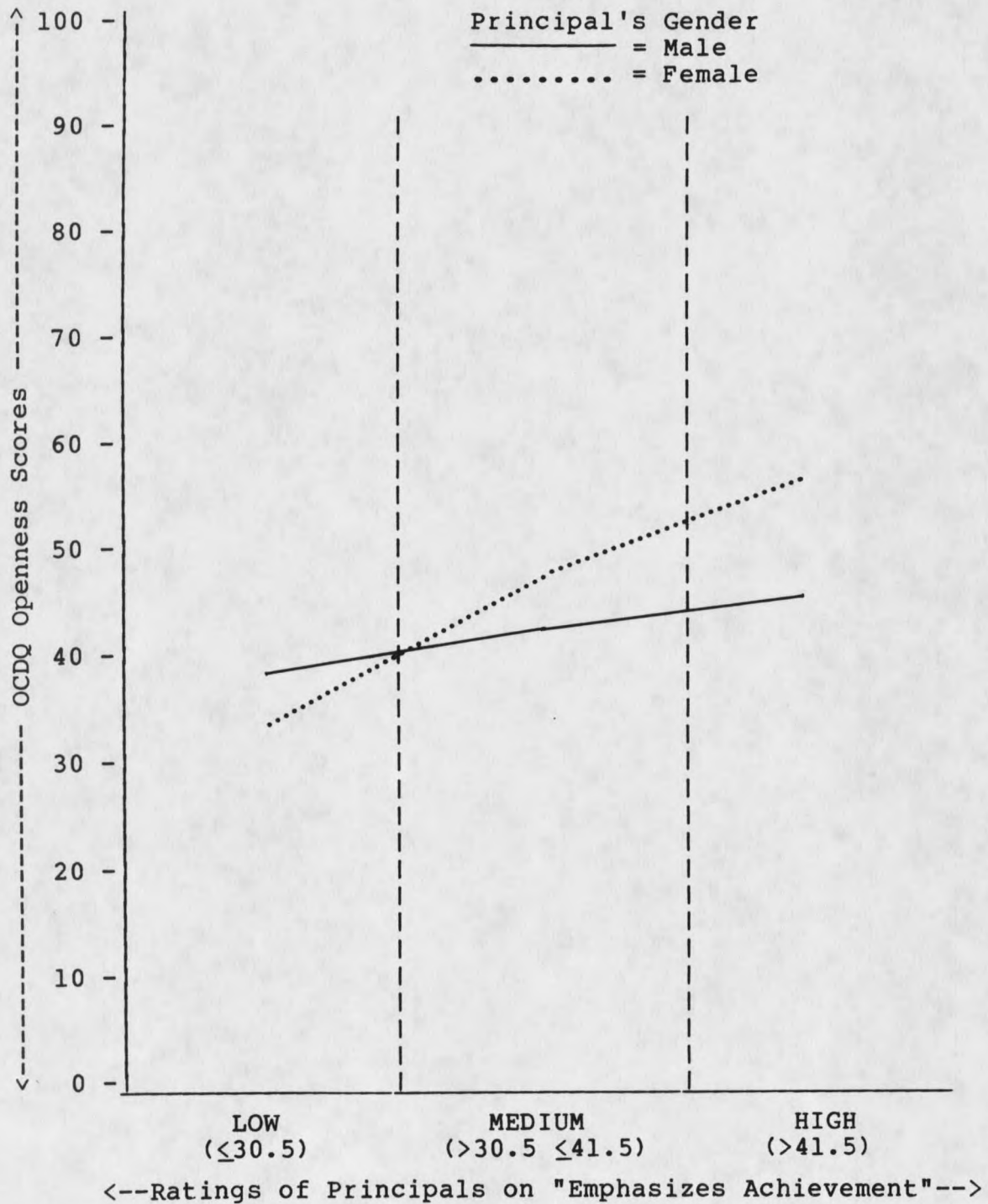


Figure 3. Graphical representation of cell mean values reported in Table 21.

Table 22. Analysis of variance of general openness scores by principal's teaching experience and "emphasizes achievement" ratings.

| Source of Variation                    | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|----------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                    | 5429.509       | 4   | 1357.377    | 9.455  | .000      |
| Teaching Exper.                        | 1541.722       | 2   | 770.861     | 5.370  | .005*     |
| Emph. Achvmt.                          | 3652.074       | 2   | 1826.037    | 12.720 | .000*     |
| <u>2-Way Interactions</u>              | 1397.396       | 4   | 349.349     | 2.434  | .046*     |
| Teaching Exper./<br>Emphasizes Achvmt. | 1397.396       | 4   | 349.349     | 2.434  | .046*     |
| Explained                              | 6826.905       | 8   | 853.363     | 5.944  | .000      |
| Residual                               | 90727.987      | 632 | 143.557     |        |           |
| Total                                  | 97554.892      | 640 | 152.430     |        |           |

\*Significant at alpha = .05.

Table 23. Cell means of general openness scores by principal's teaching experience and "emphasizes achievement" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       | <u>Total Population</u> |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       |                         |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 166                                            | 41.69 | 310            | 44.19 | 165               | 40.32 | 641                     | 42.55 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                           |       |                 |       |
|-----------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;30.5</u>                         |       | <u>&gt;30.5; &lt;41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                       | Mean  | No.             | Mean  |
| 92                                      | 37.37 | 466                       | 42.84 | 83              | 46.63 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Tch. Exper.<br/>(Years)</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                           |       |                 |       |
|------------------------------------------------|-----------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                                | <u>&lt;30.5</u>                         |       | <u>&gt;30.5; &lt;41.5</u> |       | <u>&gt;41.5</u> |       |
|                                                | No.                                     | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                                      | 27                                      | 38.44 | 115                       | 41.96 | 24              | 44.04 |
| 6 to 10                                        | 38                                      | 38.16 | 232                       | 44.87 | 40              | 46.00 |
| 11 or more                                     | 27                                      | 35.19 | 119                       | 39.75 | 19              | 51.21 |

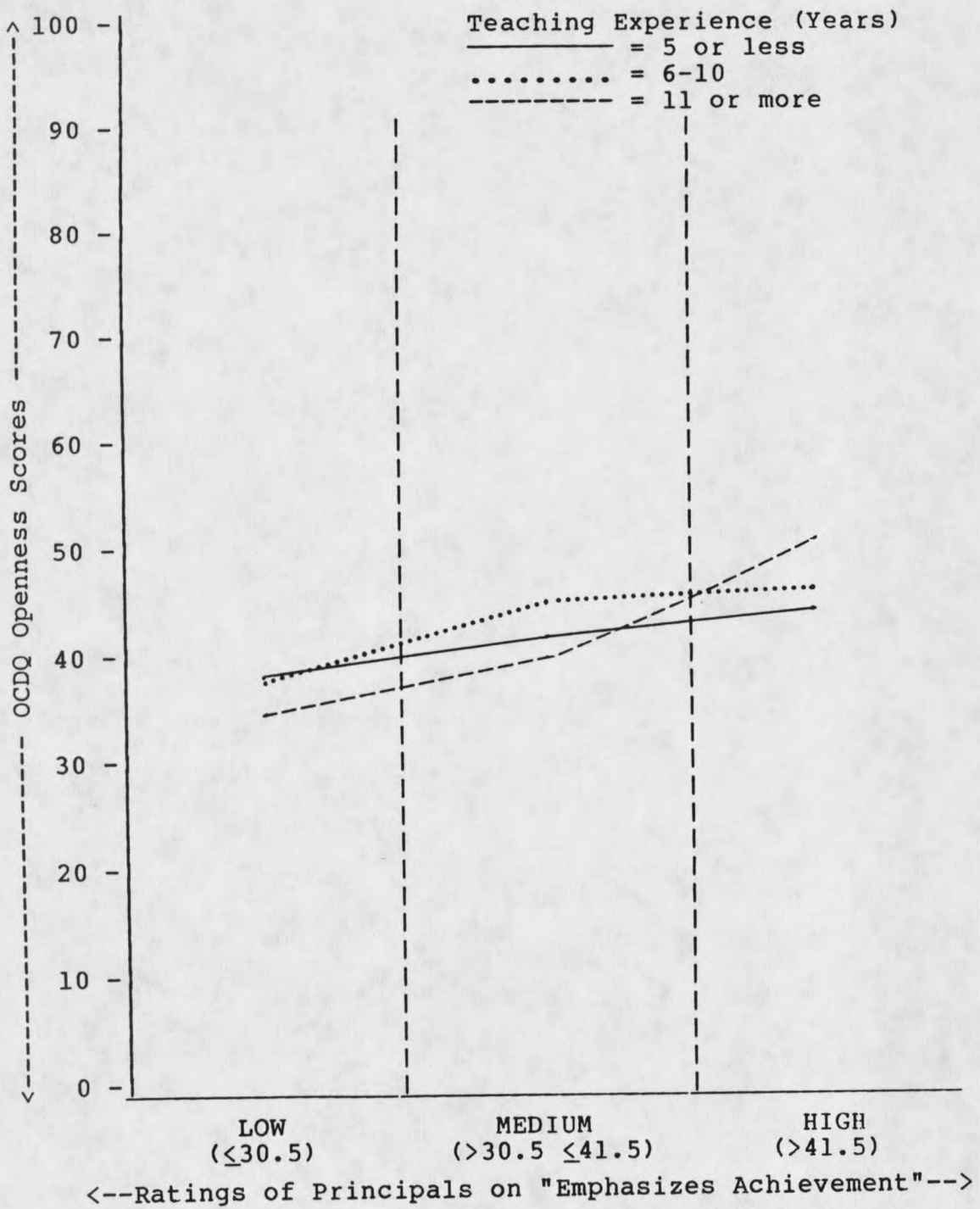


Figure 4. Graphical representation of cell mean values reported in Table 23.

Table 24. Analysis of variance of general openness scores by principal's administrative experience and "emphasizes achievement" ratings.

| Source of Variation                   | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                   | 4208.598       | 4   | 1052.149    | 7.266  | .000      |
| Administ. Exper.                      | 320.811        | 2   | 160.405     | 1.108  | .331      |
| Emph. Achvmt.                         | 3592.754       | 2   | 1796.377    | 12.406 | .000*     |
| <u>2-Way Interactions</u>             | 1832.201       | 4   | 458.050     | 3.163  | .014*     |
| Administ. Exp./<br>Emphasizes Achvmt. | 1832.201       | 4   | 458.050     | 3.163  | .014*     |
| Explained                             | 6040.799       | 8   | 755.100     | 5.215  | .000      |
| Residual                              | 91514.094      | 632 | 144.801     |        |           |
| Total                                 | 97554.892      | 640 | 152.430     |        |           |

\*Significant at alpha = .05.



Table 25. Cell means of general openness scores by principal's administrative experience and "emphasizes achievement" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       | <u>Total Population</u> |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       |                         |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 162                                          | 41.46 | 272            | 42.15 | 207               | 43.91 | 641                     | 42.55 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 92                                      | 37.37 | 466                    | 42.84 | 83              | 46.63 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|------------------------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                          | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                                          | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                                | 29                                      | 33.69 | 113                    | 42.81 | 20              | 45.15 |
| 6 to 10                                  | 47                                      | 40.23 | 192                    | 42.49 | 33              | 42.91 |
| 11 or more                               | 16                                      | 35.63 | 161                    | 43.28 | 30              | 51.70 |

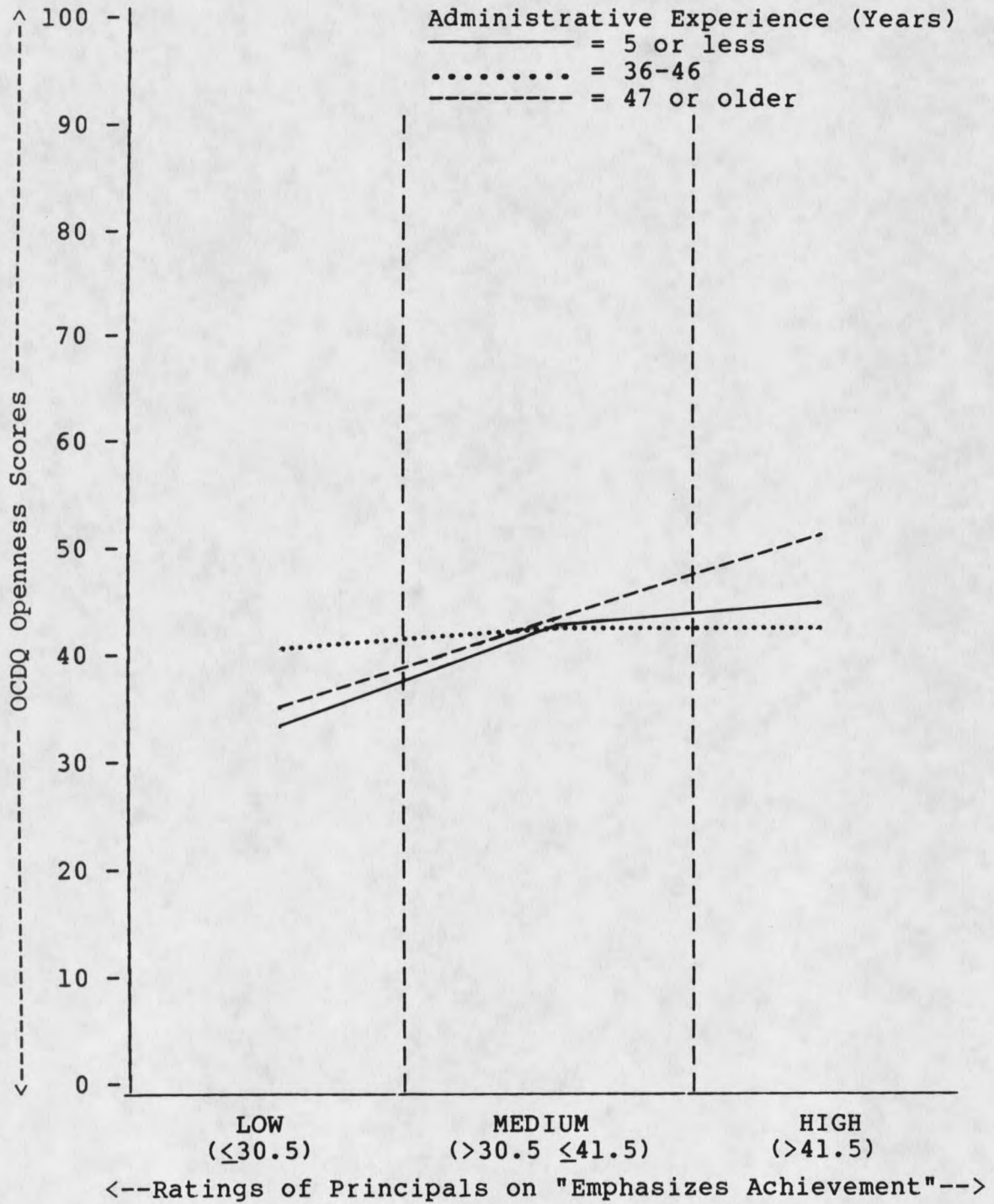


Figure 5. Graphical representation of cell mean values reported in Table 25.

Table 26. Analysis of variance of general openness scores by school size and "emphasizes achievement" ratings.

| Source of Variation                | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                | 8193.057       | 4   | 2048.264    | 14.553 | .000      |
| School Size                        | 4305.270       | 2   | 2152.635    | 15.294 | .000*     |
| Emph. Achvmt.                      | 3350.324       | 2   | 1675.162    | 11.902 | .000*     |
| <u>2-Way Interactions</u>          | 410.510        | 4   | 102.627     | 0.729  | .572      |
| School Size/<br>Emphasizes Achvmt. | 410.510        | 4   | 102.627     | 0.729  | .572      |
| Explained                          | 8603.567       | 8   | 1075.446    | 7.641  | .000      |
| Residual                           | 88951.326      | 632 | 140.746     |        |           |
| Total                              | 97554.892      | 640 | 152.430     |        |           |

\*Significant at alpha = .05.

Table 27. Cell means of general openness scores by school size and "emphasizes achievement" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total<br/>Population</u> |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-----------------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             |                             |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>                  | <u>Mean</u> |
| 173                | 38.27       | 206               | 45.30       | 262                | 43.21       | 641                         | 42.55       |

| <u>"Emphasizes Achievement" Ratings</u> |             |                        |             |                 |             |
|-----------------------------------------|-------------|------------------------|-------------|-----------------|-------------|
| <u>≤30.5</u>                            |             | <u>&gt;30.5; ≤41.5</u> |             | <u>&gt;41.5</u> |             |
| <u>No.</u>                              | <u>Mean</u> | <u>No.</u>             | <u>Mean</u> | <u>No.</u>      | <u>Mean</u> |
| 92                                      | 37.37       | 466                    | 42.84       | 83              | 46.63       |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Emphasizes Achievement" Ratings</u> |             |                        |             |                 |             |
|------------------------|-----------------------------------------|-------------|------------------------|-------------|-----------------|-------------|
|                        | <u>≤30.5</u>                            |             | <u>&gt;30.5; ≤41.5</u> |             | <u>&gt;41.5</u> |             |
|                        | <u>No.</u>                              | <u>Mean</u> | <u>No.</u>             | <u>Mean</u> | <u>No.</u>      | <u>Mean</u> |
| Under 200              | 27                                      | 31.89       | 132                    | 39.13       | 14              | 42.43       |
| 200 to 350             | 28                                      | 38.46       | 143                    | 45.76       | 35              | 48.89       |
| 351 or more            | 37                                      | 40.54       | 191                    | 43.23       | 34              | 46.03       |

Hypothesis 5. There will be no significant interaction between the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 28, 30, 32, 34 and 36 from which F-scores were derived. The F-values of 3.039, 0.163, 1.533, 2.727 and 0.692 yielded p-values of .017, .850, .191, .029 and .598, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that interactions existed between principal's age and total years of administrative experience and the ratings of principals on "provides orderly atmosphere." Cell mean differences for principal's age and total years of administrative experience are graphically displayed in Figures 6 and 7.

Hypothesis 6. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ general openness scores: (1) principal's age, (2) principal's gender, (3) principal's total

years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 28, 30, 32, 34 and 36 from which the F-scores were derived. The F-values of 25.820, 26.285, 23.572, 25.250 and 18.641, respectively, all yielded p-values of .000. The probability of obtaining those values as a result of chance alone is .000. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between school climate scores on principal's gender, total years of teaching experience and school size as they related to the ratings of principals on "provides orderly atmosphere" as determined by OCDQ general openness scores.

Main effects (row) also were found to be significant related to principal's gender, total years of teaching experience, and school size. Analyses of variance are summarized in Tables 30, 32 and 36 from which F-scores of 5.415, 3.419 and 9.555 yielded p-values of .020, .033 and .000, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between general openness cell means as they related to ratings of principals on "provides orderly atmosphere" and the principal's gender, total years

of teaching experience, and school size. Cell mean values are summarized in Tables 29, 31, 33, 35 and 37.

Table 28. Analysis of variance of general openness scores by principal's age and "provides orderly atmosphere" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 7595.640       | 4   | 1898.910    | 13.491 | .000      |
| Age                       | 201.868        | 2   | 100.934     | 0.717  | .489      |
| Ord. Atmosph.             | 7268.529       | 2   | 3634.265    | 25.820 | .000*     |
| <u>2-Way Interactions</u> | 1710.857       | 4   | 427.714     | 3.039  | .017*     |
| Age/Ord. Atmosph.         | 1710.857       | 4   | 427.714     | 3.039  | .017*     |
| Explained                 | 9306.497       | 8   | 1163.312    | 8.265  | .000      |
| Residual                  | 88814.526      | 631 | 140.752     |        |           |
| Total                     | 98121.023      | 639 | 153.554     |        |           |

\*Significant at alpha = .05.

Table 29. Cell means of general openness scores by principal's age and "provides orderly atmosphere" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 160                      | 42.58 | 346             | 42.01 | 134                    | 43.85 | 640                         | 42.54 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 136                                          | 36.29 | 406                    | 43.66 | 98              | 46.55 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                            | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                            | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 35 or younger              | 35                                           | 39.14 | 101                    | 43.52 | 24              | 43.63 |
| 36 to 46                   | 76                                           | 35.03 | 222                    | 43.86 | 48              | 44.52 |
| 47 or older                | 25                                           | 36.16 | 83                     | 43.30 | 26              | 53.00 |



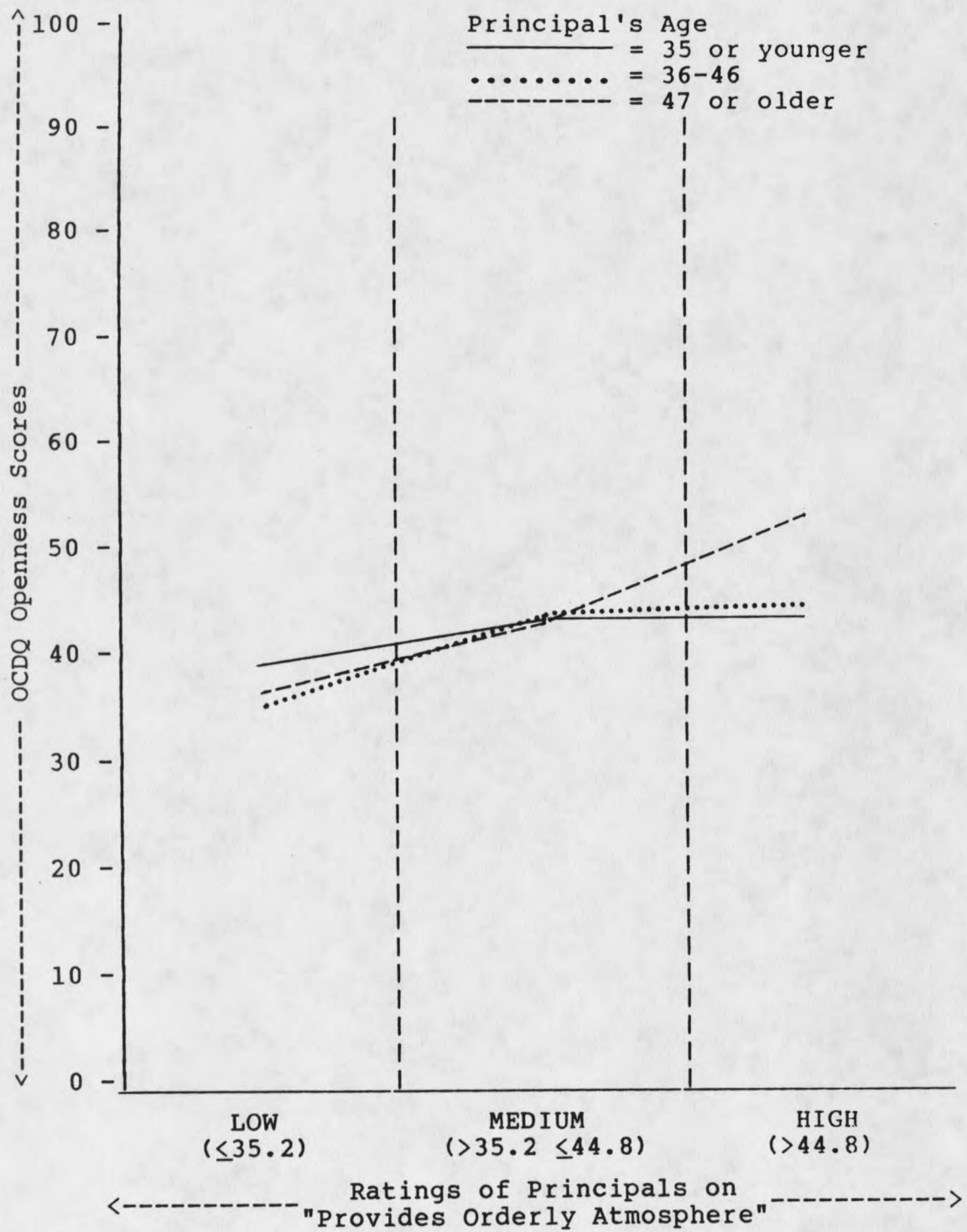


Figure 6. Graphical representation of cell mean values reported in Table 29.

Table 30. Analysis of variance of general openness scores by principal's gender and "provides orderly atmosphere" ratings.

| Source of Variation         | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|-----------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>         | 8161.746       | 3   | 2720.582    | 19.184 | .000      |
| Gender                      | 767.973        | 1   | 767.973     | 5.415  | .020      |
| Ord. Atmosph.               | 7455.413       | 2   | 3727.706    | 26.285 | .000      |
| <u>2-Way Interactions</u>   | 46.268         | 2   | 23.134      | 0.163  | .850      |
| Gender/<br>Orderly Atmosph. | 46.268         | 2   | 23.134      | 0.163  | .850      |
| Explained                   | 8208.013       | 5   | 1641.603    | 11.575 | .000      |
| Residual                    | 89913.010      | 634 | 141.819     |        |           |
| Total                       | 98121.023      | 639 | 153.554     |        |           |

Table 31. Cell means of general openness scores by principal's gender and "provides orderly atmosphere" ratings.

| <u>Principal's Gender</u> |       |               |       | <u>Total Population</u> |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       |                         |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 562                       | 42.15 | 78            | 45.36 | 640                     | 42.54 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 136                                          | 36.29 | 406                    | 43.66 | 98              | 46.55 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|---------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                           | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                           | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| Male                      | 117                                          | 35.99 | 362                    | 43.29 | 83              | 45.83 |
| Female                    | 19                                           | 38.16 | 44                     | 46.70 | 15              | 50.53 |

Table 32. Analysis of variance of general openness scores by principal's teaching experience and "provides orderly atmosphere" ratings.

| Source of Variation                  | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|--------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                  | 8357.091       | 4   | 2089.273    | 14.829 | .000      |
| Teaching Exper.                      | 963.318        | 2   | 481.659     | 3.419  | .033*     |
| Ord. Atmosph.                        | 6641.926       | 2   | 3320.963    | 23.572 | .000*     |
| <u>2-Way Interactions</u>            | 864.014        | 4   | 216.003     | 1.533  | .191      |
| Teaching Exper./<br>Orderly Atmosph. | 864.014        | 4   | 216.003     | 1.533  | .191      |
| Explained                            | 9221.104       | 8   | 1152.638    | 8.181  | .000      |
| Residual                             | 88899.919      | 631 | 140.887     |        |           |
| Total                                | 98121.023      | 639 | 153.554     |        |           |

\*Significant at alpha = .05.

Table 33. Cell means of general openness scores by principal's teaching experience and "provides orderly atmosphere" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 162                                            | 41.63 | 311            | 44.16 | 167               | 40.40 | 640                     | 42.54 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 136                                          | 36.29 | 406                    | 43.66 | 98              | 46.55 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                                        | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 39                                           | 38.31 | 104                    | 42.38 | 19              | 44.37 |
| 6 to 10                                | 52                                           | 38.50 | 201                    | 44.73 | 58              | 47.26 |
| 11 or more                             | 45                                           | 32.00 | 101                    | 42.86 | 21              | 46.57 |

Table 34. Analysis of variance of general openness scores by principal's administrative experience and "provides orderly atmosphere" ratings.

| Source of Variation                 | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|-------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                 | 7713.603       | 4   | 1928.401    | 13.692 | .000      |
| Administ. Exper.                    | 319.830        | 2   | 159.915     | 1.135  | .322      |
| Ord. Atmosph.                       | 7112.442       | 2   | 3556.221    | 25.250 | .000*     |
| <u>2-Way Interactions</u>           | 1536.128       | 4   | 384.032     | 2.727  | .029*     |
| Administ. Exp./<br>Orderly Atmosph. | 1536.128       | 4   | 384.032     | 2.727  | .029*     |
| Explained                           | 9249.731       | 8   | 1156.216    | 8.209  | .000      |
| Residual                            | 88871.292      | 631 | 140.842     |        |           |
| Total                               | 98121.023      | 639 | 153.554     |        |           |

\*Significant at alpha = .05.

Table 35. Cell means of general openness scores by principal's administrative experience and "provides orderly atmosphere" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 162                                          | 41.58 | 272            | 42.07 | 206               | 43.92 | 640                     | 42.54 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 136                                          | 36.29 | 406                       | 43.66 | 98              | 46.55 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|------------------------------------------|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                          | <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
|                                          | No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                                | 39                                           | 34.03 | 106                       | 43.53 | 17              | 46.76 |
| 6 to 10                                  | 62                                           | 38.55 | 164                       | 43.05 | 46              | 43.28 |
| 11 or more                               | 35                                           | 34.83 | 136                       | 44.50 | 35              | 50.74 |

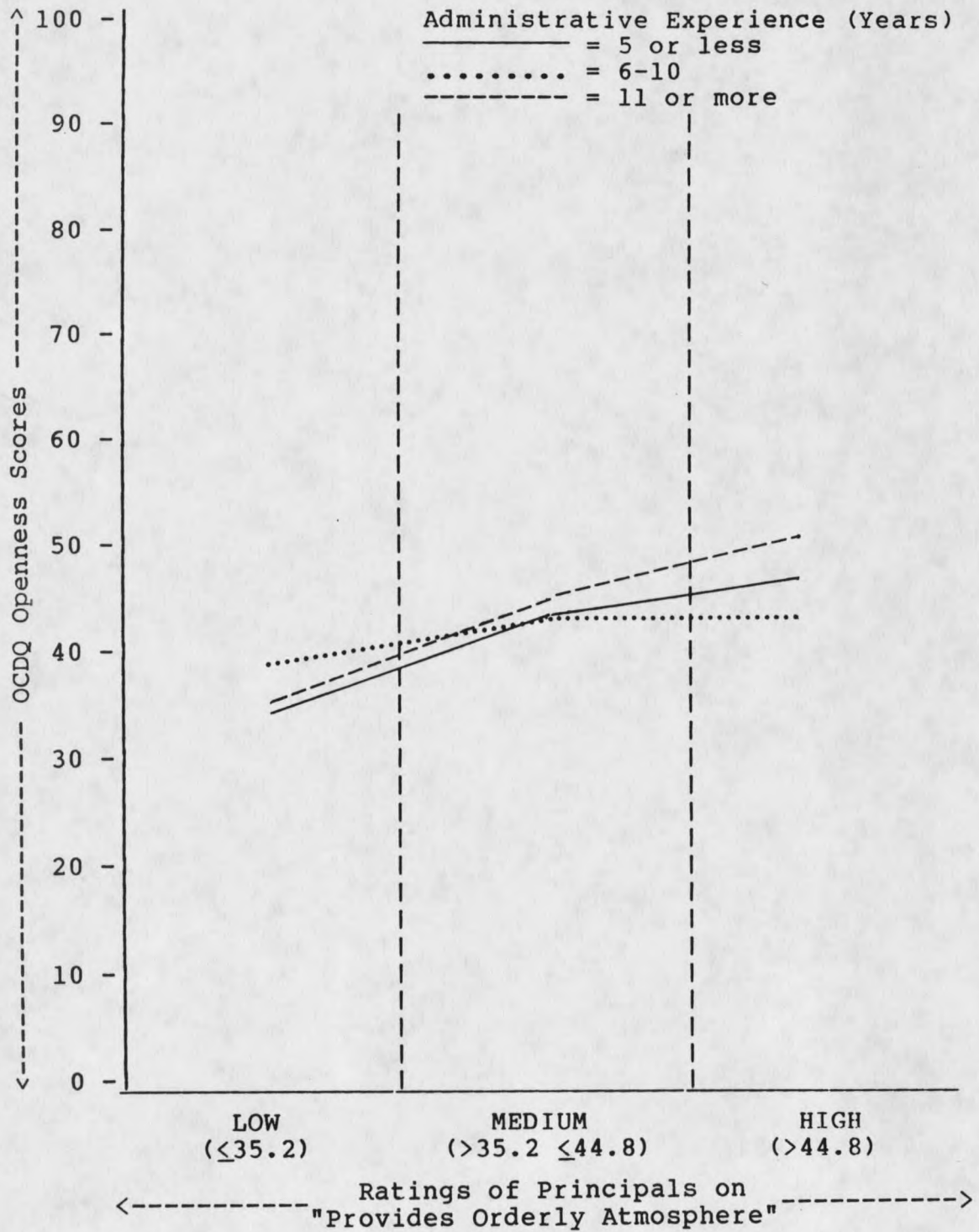


Figure 7. Graphical representation of cell mean values reported in Table 35.



Table 36. Analysis of variance of general openness scores by school size and "provides orderly atmosphere" ratings.

| Source of Variation              | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|----------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>              | 10049.525      | 4   | 2512.381    | 18.079 | .000      |
| School Size                      | 2655.752       | 2   | 1327.876    | 9.555  | .000*     |
| Ord. Atmosph.                    | 5180.958       | 2   | 2590.479    | 18.641 | .000*     |
| <u>2-Way Interactions</u>        | 384.416        | 4   | 96.104      | 0.692  | .598      |
| School Size/<br>Orderly Atmosph. | 384.416        | 4   | 96.104      | 0.692  | .598      |
| Explained                        | 10433.941      | 8   | 1304.243    | 9.385  | .000      |
| Residual                         | 87687.083      | 631 | 138.965     |        |           |
| Total                            | 98121.023      | 639 | 153.554     |        |           |

\*Significant at alpha = .05.

Table 37. Cell means of general openness scores by school size and "provides orderly atmosphere" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total<br/>Population</u> |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-----------------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             |                             |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>                  | <u>Mean</u> |
| 173                | 38.24       | 206               | 45.29       | 261                | 43.22       | 640                         | 42.54       |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 136                                          | 36.29 | 406                    | 43.66 | 98              | 46.55 |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                        | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                        | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| Under 200              | 63                                           | 33.22 | 94                     | 40.64 | 16              | 43.94 |
| 200 to 350             | 31                                           | 39.90 | 132                    | 45.17 | 43              | 49.53 |
| 351 or more            | 42                                           | 38.24 | 180                    | 44.14 | 39              | 44.33 |

Hypothesis 7. There will be no significant interaction between the ratings of principals on "supports teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 38, 40, 42, 44 and 46 from which the F-scores were derived. The F-values of 2.049, 1.082, 1.897, 2.405 and 2.494 yielded p-values of .086, .340, .109, .049 and .042, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that two-way interactions existed between principal's total years of administrative experience and school size and the ratings of principals on "supports teachers" as determined by OCDQ subtest scores for characteristics of faculty behaviors.

Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "supports teachers" and principal's total years of administrative experience and school size as determined by OCDQ subtest

scores for characteristics of faculty behaviors. Cell means are graphically displayed in Figures 8 and 9.

Hypothesis 8. There will be no significant difference between school climate means (row or column) as they relate to principal ratings on "supports teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 38, 40, 42, 44 and 46 from which the F-scores were derived. The F-values of 0.745, 0.742, 1.322, 0.551 and 0.566 yielded p-values of .475, .477, .267, .557 and .568, respectively. Based upon those findings, it was concluded that there was no significant difference between school climate means (column) as they related to principal ratings on "supports teachers" and principal's age, principal's gender, principal's total years of teaching or administrative experience, or school size as determined by OCDQ subtest scores for characteristics of faculty behaviors. Cell mean values are displayed in Tables 39, 41, 43, 45 and 47.

Main effects (row) were found to be significant related to principal's age and total years of teaching experience. Analyses of variance are summarized in Tables 38 and 42 from which the F-scores of 7.575 and 4.611 yielded p-values of .001 and .010, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between school climate means (row) as they related to principal ratings on "supports teachers" and principal's age and total years of teaching experience. Cell mean values are displayed in Table 39.

Table 38. Analysis of variance of characteristics of faculty behaviors by principal's age and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 959.358        | 4   | 239.840     | 4.195 | .002      |
| Age                       | 866.165        | 2   | 433.083     | 7.575 | .001*     |
| Supports Teachers         | 85.138         | 2   | 42.569      | 0.745 | .475      |
| <u>2-Way Interactions</u> | 468.548        | 4   | 117.137     | 2.049 | .086      |
| Age/Supports Tchrs.       | 468.548        | 4   | 117.137     | 2.049 | .086      |
| Explained                 | 1427.906       | 8   | 178.488     | 3.122 | .002      |
| Residual                  | 34018.902      | 595 | 57.175      |       |           |
| Total                     | 35446.808      | 603 | 58.784      |       |           |

\*Significant at alpha = .05.

Table 39. Cell means of characteristics of faculty behaviors by principal's age and "supports teachers" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 152                      | 84.22 | 323             | 87.10 | 129                    | 85.78 | 604                         | 86.09 |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 86.06 | 416                    | 85.90 | 86              | 87.05 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|----------------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                            | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                            | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 35 or younger              | 32                                 | 84.72 | 104                    | 84.19 | 16              | 83.38 |
| 36 to 46                   | 53                                 | 87.81 | 226                    | 86.96 | 44              | 86.95 |
| 47 or older                | 17                                 | 83.12 | 86                     | 85.20 | 26              | 89.46 |

Table 40. Analysis of variance of characteristics of faculty behaviors by principal's gender and "supports teachers" ratings.

| Source of Variation          | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>          | 97.748         | 3   | 32.583      | 0.553 | .646      |
| Gender                       | 4.555          | 1   | 4.555       | 0.077 | .781      |
| Supports Teachers            | 87.420         | 2   | 43.710      | 0.742 | .477      |
| <u>2-Way Interactions</u>    | 127.436        | 2   | 63.718      | 1.082 | .340      |
| Gender/<br>Supports Teachers | 127.436        | 2   | 63.718      | 1.082 | .340      |
| Explained                    | 225.184        | 5   | 45.037      | 0.765 | .576      |
| Residual                     | 35221.624      | 598 | 58.899      |       |           |
| Total                        | 35446.808      | 603 | 58.784      |       |           |

Table 41. Cell means of characteristics of faculty behaviors by principal's gender and "supports teachers" ratings.

| <u>Principal's Gender</u> |       |               |       | <u>Total Population</u> |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       |                         |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 529                       | 86.04 | 75            | 86.44 | 604                     | 86.09 |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 86.06 | 416                    | 85.90 | 86              | 87.05 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|---------------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                           | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                           | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| Male                      | 86                                 | 85.65 | 375                    | 85.89 | 68              | 87.40 |
| Female                    | 16                                 | 88.25 | 41                     | 86.05 | 18              | 85.72 |



Table 42. Analysis of variance of characteristics of faculty behaviors by principal's teaching experience and "supports teachers" ratings.

| Source of Variation                   | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                   | 626.078        | 4   | 156.520     | 2.709 | .029      |
| Teaching Exper.                       | 532.885        | 2   | 266.443     | 4.611 | .010*     |
| Supports Teachers                     | 152.735        | 2   | 76.367      | 1.322 | .267      |
| <u>2-Way Interactions</u>             | 438.403        | 4   | 109.601     | 1.897 | .109      |
| Teaching Exper./<br>Supports Teachers | 438.403        | 4   | 109.601     | 1.897 | .109      |
| Explained                             | 1064.481       | 8   | 133.060     | 2.303 | .020      |
| Residual                              | 34382.327      | 595 | 57.785      |       |           |
| Total                                 | 35446.808      | 603 | 58.784      |       |           |

\*Significant at alpha = .05.

Table 43. Cell means of characteristics of faculty behaviors by principal's teaching experience and "supports teachers" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 160                                            | 87.54 | 285            | 85.42 | 159               | 85.85 | 604                     | 86.09 |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 86.06 | 416                    | 85.90 | 86              | 87.05 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                                        | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 29                                 | 90.00 | 118                    | 86.83 | 13              | 88.46 |
| 6 to 10                                | 38                                 | 85.11 | 192                    | 85.28 | 55              | 86.11 |
| 11 or more                             | 35                                 | 83.83 | 106                    | 86.00 | 18              | 88.89 |

Table 44. Analysis of variance of characteristics of faculty behaviors by principal's administrative experience and "supports teachers" ratings.

| Source of Variation                  | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|--------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                  | 371.277        | 4   | 92.819      | 1.600 | .173      |
| Administ. Exper.                     | 278.084        | 2   | 139.042     | 2.397 | .092      |
| Supports Teachers                    | 63.905         | 2   | 31.952      | 0.551 | .577      |
| <u>2-Way Interactions</u>            | 558.034        | 4   | 139.508     | 2.405 | .049*     |
| Administ. Exp./<br>Supports Teachers | 558.034        | 4   | 139.508     | 2.405 | .049*     |
| Explained                            | 929.311        | 8   | 116.164     | 2.002 | .044      |
| Residual                             | 34517.497      | 595 | 58.013      |       |           |
| Total                                | 35446.808      | 603 | 58.784      |       |           |

\*Significant at alpha = .05.

Table 45. Cell means of characteristics of faculty behaviors by principal's administrative experience and "supports teachers" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 155                                          | 85.74 | 260            | 85.54 | 189               | 87.14 | 604                     | 86.09 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 102                                | 86.06 | 416                       | 85.90 | 86              | 87.05 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                          | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                                          | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                                | 32                                 | 87.09 | 105                       | 85.92 | 18              | 82.28 |
| 6 to 10                                  | 50                                 | 85.62 | 181                       | 85.33 | 29              | 86.72 |
| 11 or more                               | 20                                 | 85.50 | 130                       | 86.69 | 39              | 89.49 |

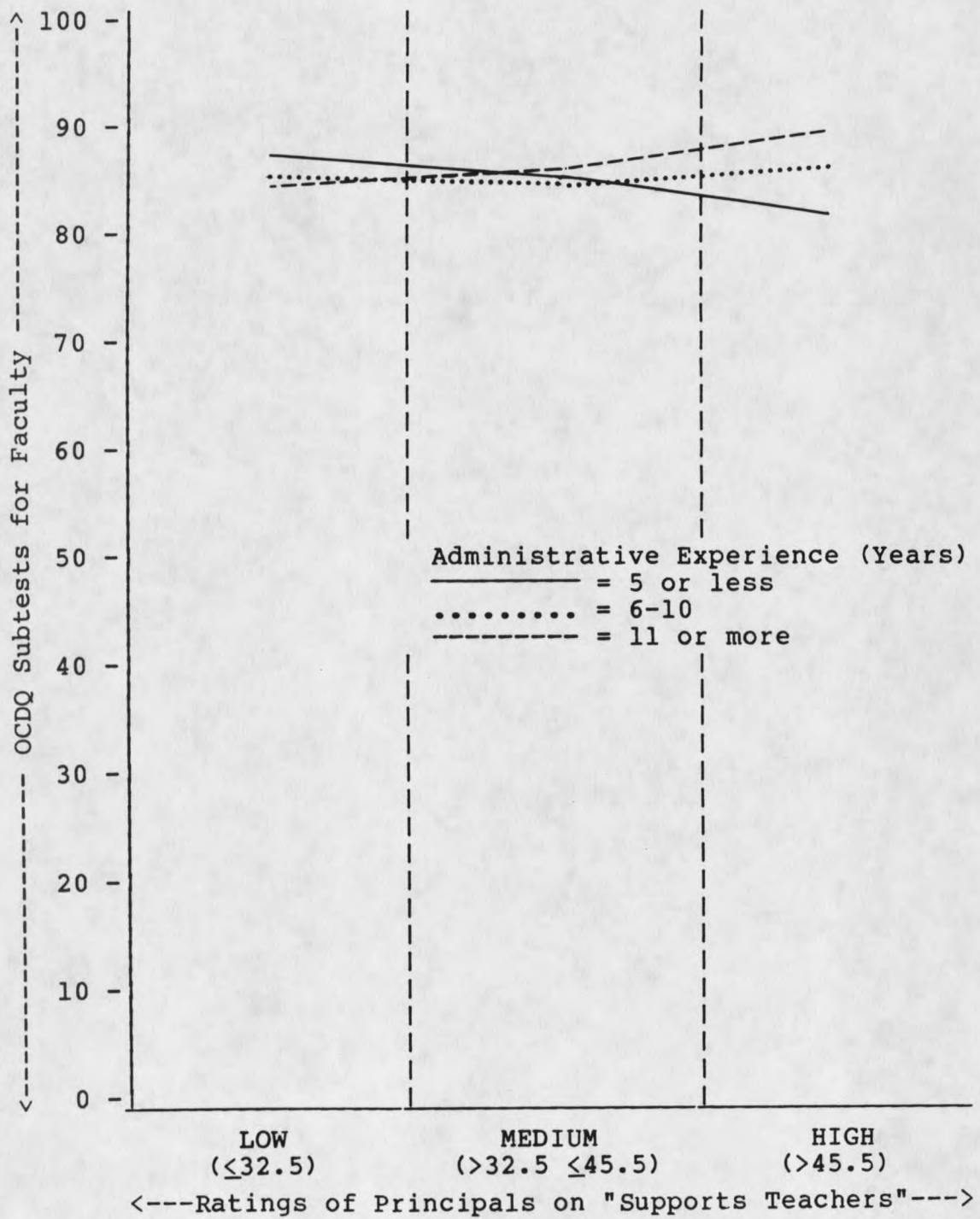


Figure 8. Graphical representation of cell mean values reported in Table 45.

Table 46. Analysis of variance of characteristics of faculty behaviors by school size and "supports teachers" ratings.

| Source of Variation               | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-----------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>               | 317.512        | 4   | 79.378      | 1.367 | .244      |
| School Size                       | 224.319        | 2   | 112.159     | 1.932 | .146      |
| Supports Teachers                 | 65.752         | 2   | 32.876      | 0.566 | .568      |
| <u>2-Way Interactions</u>         | 579.230        | 4   | 114.807     | 2.494 | .042*     |
| School Size/<br>Supports Teachers | 579.230        | 4   | 114.807     | 2.494 | .042*     |
| Explained                         | 896.742        | 8   | 112.093     | 1.930 | .053      |
| Residual                          | 34550.066      | 595 | 58.067      |       |           |
| Total                             | 35446.808      | 603 | 58.784      |       |           |

\*Significant at alpha = .05.

Table 47. Cell means of characteristics of faculty behaviors by school size and "supports teachers" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total<br/>Population</u> |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-----------------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             |                             |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>                  | <u>Mean</u> |
| 161                | 85.08       | 199               | 86.73       | 244                | 86.24       | 604                         | 86.09       |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 86.06 | 416                    | 85.90 | 86              | 87.05 |

<----- Two-Way Cell Means ----->

| <u>School Size</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|--------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                    | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                    | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| Under 200          | 38                                 | 86.37 | 110                    | 85.16 | 13              | 80.62 |
| 200 to 350         | 25                                 | 85.64 | 134                    | 86.66 | 40              | 87.67 |
| 351 or more        | 39                                 | 86.03 | 172                    | 85.79 | 33              | 88.82 |

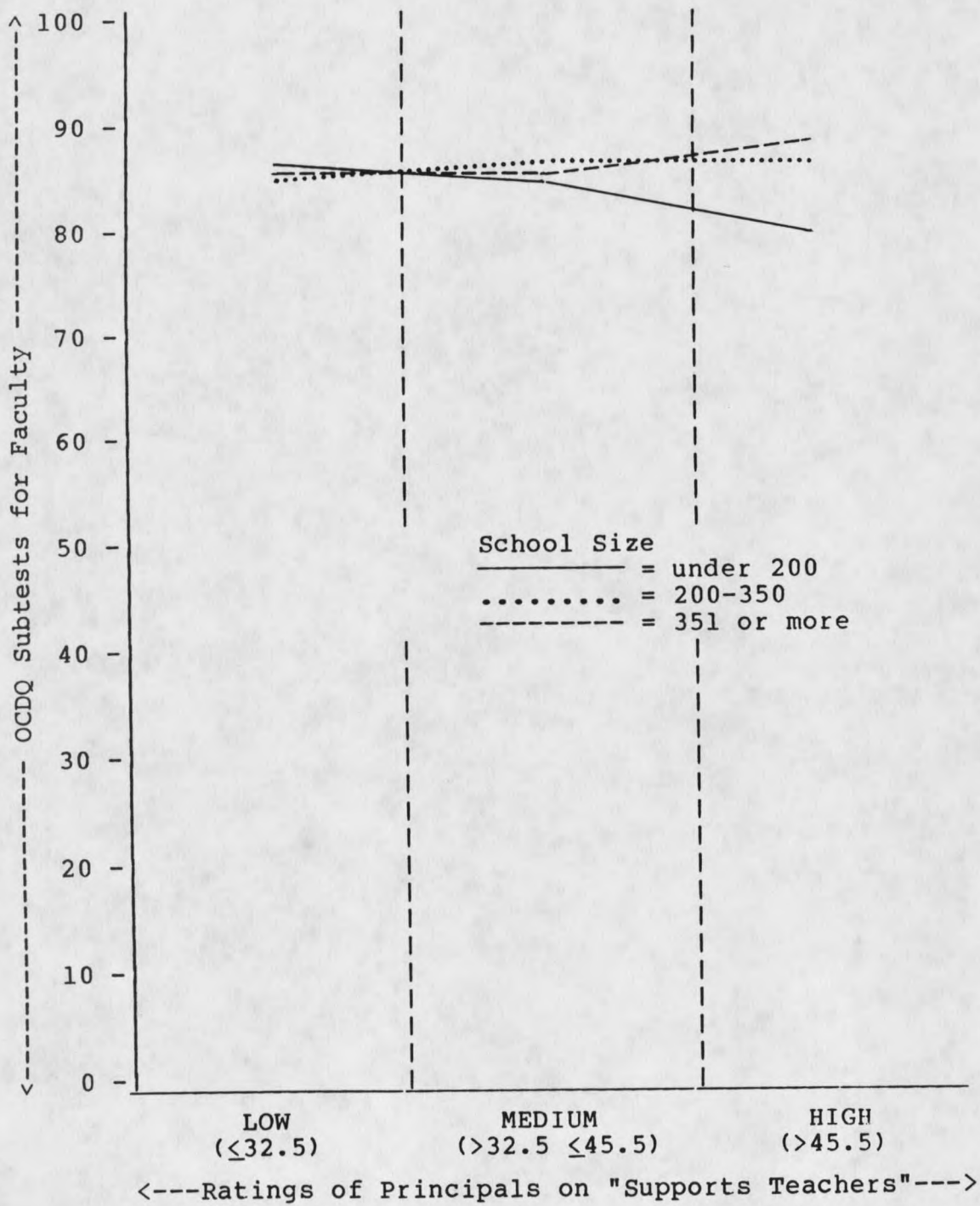


Figure 9. Graphical representation of cell mean values reported in Table 47.



Hypothesis 9. There will be no significant interaction between the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 48, 50, 52, 54 and 56 from which F-scores were derived. The F-values of 1.849, 0.358, 0.687, 1.189 and 2.208 yielded p-values of .118, .700, .601, .315 and .067, respectively, indicating no two-way interactions existed between principal's age, principal's gender, principal's total years of teaching or administrative experience, or school size and the ratings of principals on "emphasizes achievement" as determined by OCDQ subtest scores for characteristics of faculty behaviors.

Based upon those findings, the null hypothesis was retained. It was concluded that there was no significant interaction between the ratings of principals on "emphasizes achievement" and each of the independent variables as determined by OCDQ subtest scores on characteristics of faculty behaviors.

Hypothesis 10. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 48, 50, 52, 54 and 56 from which the F-scores were derived. The F-values of 0.222, 0.368, 0.438, 0.164 and 0.223 yielded p-values of .801, .692, .646, .849 and .800, respectively. Based upon those findings, it was concluded that there was no significant difference between school climate means (column) as they related to the ratings of principals on "emphasizes achievement" and principal's age, gender, total years of teaching or administrative experience, or school size as determined by OCDQ subtest scores for characteristics of faculty behaviors. Cell mean values are displayed in Tables 49, 51, 53, 55 and 57.

Main effects (row) were found to be significant related to principal's age and total years of teaching experience. The analyses of variance are summarized in

Tables 48 and 52 from which the F-scores of 7.175 and 3.615 yielded p-values of .001 and .023, respectively. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between school climate means (row) as they related to the ratings of principals on "emphasizes achievement" and principal's age and total years of teaching experience. Cell mean values are displayed in Tables 49 and 53.

Table 48. Analysis of variance of characteristics of faculty behaviors by principal's age and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 862.639        | 4   | 215.660     | 3.761 | .005      |
| Age                       | 823.227        | 2   | 411.613     | 7.178 | .001*     |
| Emph. Achvmt.             | 25.423         | 2   | 12.712      | 0.222 | .801      |
| <u>2-Way Interactions</u> | 424.188        | 4   | 106.047     | 1.849 | .118      |
| Age/Emph. Achvmt.         | 424.188        | 4   | 106.047     | 1.849 | .118      |
| Explained                 | 1286.826       | 8   | 160.853     | 2.805 | .005      |
| Residual                  | 34290.156      | 598 | 57.341      |       |           |
| Total                     | 35576.982      | 606 | 58.708      |       |           |

\*Significant at alpha = .05.

Table 49. Cell means of characteristics of faculty behaviors by principal's age and "emphasizes achievement" ratings.

| Principal's Age  |       |          |       |                |       |                     |       |
|------------------|-------|----------|-------|----------------|-------|---------------------|-------|
| 35<br>or Younger |       | 36 to 46 |       | 47<br>or Older |       | Total<br>Population |       |
| No.              | Mean  | No.      | Mean  | No.            | Mean  | No.                 | Mean  |
| 151              | 84.20 | 327      | 87.02 | 129            | 85.78 | 607                 | 86.06 |

| "Emphasizes Achievement" Ratings |       |              |       |       |       |
|----------------------------------|-------|--------------|-------|-------|-------|
| <30.5                            |       | >30.5; <41.5 |       | >41.5 |       |
| No.                              | Mean  | No.          | Mean  | No.   | Mean  |
| 90                               | 85.52 | 433          | 86.09 | 84    | 86.45 |

<----- Two-Way Cell Means ----->

| Principal's<br>Age | <30.5 |       | >30.5; <41.5 |       | >41.5 |       |
|--------------------|-------|-------|--------------|-------|-------|-------|
|                    | No.   | Mean  | No.          | Mean  | No.   | Mean  |
| 35 or younger      | 32    | 83.25 | 98           | 85.04 | 21    | 81.71 |
| 36 to 46           | 47    | 87.11 | 236          | 86.88 | 44    | 87.73 |
| 47 or older        | 11    | 85.36 | 99           | 85.26 | 19    | 88.74 |

Table 50. Analysis of variance of characteristics of faculty behaviors by principal's gender and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 55.269         | 3   | 18.423      | 0.312 | .817      |
| Gender                    | 15.857         | 1   | 15.857      | 0.269 | .604      |
| Emph. Achvmt.             | 43.433         | 2   | 21.716      | 0.368 | .692      |
| <u>2-Way Interactions</u> | 42.219         | 2   | 21.109      | 0.358 | .700      |
| Gender/Emph.Achvmt.       | 42.219         | 2   | 21.109      | 0.358 | .700      |
| Explained                 | 97.488         | 5   | 19.498      | 0.330 | .895      |
| Residual                  | 35479.494      | 601 | 59.034      |       |           |
| Total                     | 35576.982      | 606 | 58.708      |       |           |

Table 51. Cell means of characteristics of faculty behaviors by principal's gender and "emphasizes achievement" ratings.

| <u>Principal's Gender</u>               |                 |                           |                           |                         |                 |       |
|-----------------------------------------|-----------------|---------------------------|---------------------------|-------------------------|-----------------|-------|
| <u>Male</u>                             |                 | <u>Female</u>             |                           | <u>Total Population</u> |                 |       |
| No.                                     | Mean            | No.                       | Mean                      | No.                     | Mean            |       |
| 533                                     | 86.01           | 74                        | 86.43                     | 607                     | 86.06           |       |
|                                         |                 |                           |                           |                         |                 |       |
| <u>"Emphasizes Achievement" Ratings</u> |                 |                           |                           |                         |                 |       |
| <u>&lt;30.5</u>                         |                 | <u>&gt;30.5; &lt;41.5</u> |                           | <u>&gt;41.5</u>         |                 |       |
| No.                                     | Mean            | No.                       | Mean                      | No.                     | Mean            |       |
| 90                                      | 85.52           | 433                       | 86.09                     | 84                      | 86.45           |       |
|                                         |                 |                           |                           |                         |                 |       |
| <----- Two-Way Cell Means ----->        |                 |                           |                           |                         |                 |       |
| <u>Principal's Gender</u>               | <u>&lt;30.5</u> |                           | <u>&gt;30.5; &lt;41.5</u> |                         | <u>&gt;41.5</u> |       |
|                                         | No.             | Mean                      | No.                       | Mean                    | No.             | Mean  |
| Male                                    | 73              | 85.18                     | 384                       | 86.10                   | 76              | 86.33 |
| Female                                  | 17              | 87.00                     | 49                        | 86.04                   | 8               | 87.63 |

Table 52. Analysis of variance of characteristics of faculty behaviors by principal's teaching experience and "emphasizes achievement" ratings.

| Source of Variation                    | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|----------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                    | 462.032        | 4   | 115.508     | 1.976 | .097      |
| Teaching Exper.                        | 422.620        | 2   | 211.310     | 3.615 | .028*     |
| Emph. Achvmt.                          | 51.183         | 2   | 25.592      | 0.438 | .646      |
| <u>2-Way Interactions</u>              | 160.706        | 4   | 40.176      | 0.687 | .601      |
| Teaching Exper./<br>Emphasizes Achvmt. | 160.706        | 4   | 40.176      | 0.687 | .601      |
| Explained                              | 622.738        | 8   | 77.842      | 1.332 | .225      |
| Residual                               | 34954.244      | 598 | 58.452      |       |           |
| Total                                  | 35576.982      | 606 | 58.708      |       |           |

\*Significant at alpha = .05.

Table 53. Cell means of characteristics of faculty behaviors by principal's teaching experience and "emphasizes achievement" ratings.

| <u>Principal's Teaching Experience (Years)</u> |                 |                           |                           |                   |                 |                         |       |
|------------------------------------------------|-----------------|---------------------------|---------------------------|-------------------|-----------------|-------------------------|-------|
| <u>5 or Less</u>                               |                 | <u>6 to 10</u>            |                           | <u>11 or More</u> |                 | <u>Total Population</u> |       |
| No.                                            | Mean            | No.                       | Mean                      | No.               | Mean            | No.                     | Mean  |
| 159                                            | 87.41           | 288                       | 85.43                     | 160               | 85.84           | 607                     | 86.06 |
|                                                |                 |                           |                           |                   |                 |                         |       |
| <u>"Emphasizes Achievement" Ratings</u>        |                 |                           |                           |                   |                 |                         |       |
| <u>&lt;30.5</u>                                |                 | <u>&gt;30.5; &lt;41.5</u> |                           | <u>&gt;41.5</u>   |                 |                         |       |
| No.                                            | Mean            | No.                       | Mean                      | No.               | Mean            |                         |       |
| 90                                             | 85.52           | 433                       | 86.09                     | 84                | 86.45           |                         |       |
|                                                |                 |                           |                           |                   |                 |                         |       |
| <----- Two-Way Cell Means ----->               |                 |                           |                           |                   |                 |                         |       |
| Principal's<br>Tch. Exper.<br>(Years)          | <u>&lt;30.5</u> |                           | <u>&gt;30.5; &lt;41.5</u> |                   | <u>&gt;41.5</u> |                         |       |
|                                                | No.             | Mean                      | No.                       | Mean              | No.             | Mean                    |       |
| 5 or less                                      | 28              | 88.07                     | 108                       | 87.45             | 23              | 86.39                   |       |
| 6 to 10                                        | 36              | 84.69                     | 211                       | 85.42             | 41              | 86.15                   |       |
| 11 or more                                     | 26              | 83.92                     | 114                       | 86.05             | 20              | 87.15                   |       |



Table 54. Analysis of variance of characteristics of faculty behaviors by principal's administrative experience and "emphasizes achievement" ratings.

| Source of Variation                   | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                   | 279.200        | 4   | 69.800      | 1.192 | .313      |
| Administ. Exper.                      | 239.788        | 2   | 119.894     | 2.047 | .130      |
| Emph. Achvmt.                         | 19.246         | 2   | 9.623       | 0.164 | .849      |
| <u>2-Way Interactions</u>             | 278.487        | 4   | 69.622      | 1.189 | .315      |
| Administ. Exp./<br>Emphasizes Achvmt. | 278.487        | 4   | 69.622      | 1.189 | .315      |
| Explained                             | 557.687        | 8   | 69.711      | 1.190 | .302      |
| Residual                              | 35019.295      | 598 | 58.561      |       |           |
| Total                                 | 35576.982      | 606 | 58.708      |       |           |

Table 55. Cell means of characteristics of faculty behaviors by principal's administrative experience and "emphasizes achievement" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 153                                          | 85.79 | 259            | 85.51 | 195               | 86.99 | 607                     | 86.06 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 90                                      | 85.52 | 433                    | 86.09 | 84              | 86.45 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>≤30.5</u> |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|------------------------------------------|--------------|-------|------------------------|-------|-----------------|-------|
|                                          | No.          | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                                | 30           | 86.33 | 104                    | 85.82 | 19              | 84.79 |
| 6 to 10                                  | 46           | 84.87 | 178                    | 85.81 | 35              | 84.80 |
| 11 or more                               | 14           | 85.93 | 151                    | 86.61 | 30              | 89.43 |

Table 56. Analysis of variance of characteristics of faculty behaviors by school size and "emphasizes achievement" ratings.

| Source of Variation                | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                | 267.552        | 4   | 66.888      | 1.150 | .332      |
| School Size                        | 228.140        | 2   | 114.070     | 1.960 | .142      |
| Emph. Achvmt.                      | 25.923         | 2   | 12.961      | 0.223 | .800      |
| <u>2-Way Interactions</u>          | 514.011        | 4   | 128.503     | 2.208 | .067      |
| School Size/<br>Emphasizes Achvmt. | 514.011        | 4   | 128.503     | 2.208 | .067      |
| Explained                          | 781.563        | 8   | 97.695      | 1.679 | .100      |
| Residual                           | 34795.418      | 598 | 58.186      |       |           |
| Total                              | 35576.982      | 606 | 58.708      |       |           |

Table 57. Cell means of characteristics of faculty behaviors by school size and "emphasizes achievement" ratings.

| School Size                      |       |              |              |             |       |                  |       |
|----------------------------------|-------|--------------|--------------|-------------|-------|------------------|-------|
| Under 200                        |       | 200 to 350   |              | 351 or More |       | Total Population |       |
| No.                              | Mean  | No.          | Mean         | No.         | Mean  | No.              | Mean  |
| 159                              | 85.09 | 198          | 86.74        | 250         | 86.13 | 607              | 86.06 |
|                                  |       |              |              |             |       |                  |       |
| "Emphasizes Achievement" Ratings |       |              |              |             |       |                  |       |
| ≤30.5                            |       | >30.5; ≤41.5 |              | >41.5       |       |                  |       |
| No.                              | Mean  | No.          | Mean         | No.         | Mean  |                  |       |
| 90                               | 85.52 | 433          | 86.09        | 84          | 86.45 |                  |       |
|                                  |       |              |              |             |       |                  |       |
| <----- Two-Way Cell Means -----> |       |              |              |             |       |                  |       |
| School Size                      | ≤30.5 |              | >30.5; ≤41.5 |             | >41.5 |                  |       |
|                                  | No.   | Mean         | No.          | Mean        | No.   | Mean             |       |
| Under 200                        | 28    | 87.61        | 118          | 84.72       | 13    | 83.08            |       |
| 200 to 350                       | 28    | 85.46        | 134          | 87.01       | 36    | 86.75            |       |
| 351 or more                      | 34    | 83.85        | 181          | 86.31       | 35    | 87.40            |       |

Hypothesis 11. There will be no significant interaction between the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 58, 60, 62, 64 and 66 from which F-scores were derived. The F-values of 2.027, 2.677, 3.901, 2.203 and 0.719 yielded p-values of .089, .070, .004, .067 and .579, respectively, indicating a two-way interaction existed between principal's total years of teaching experience and the ratings of principals on "provides orderly atmosphere" as determined by OCDQ subtest scores for characteristics of faculty behaviors.

Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "provides orderly atmosphere" and principal's total years of teaching experience as determined by OCDQ subtest scores for characteristics of faculty behaviors. Cell mean values are graphically displayed in Figure 10.

Hypothesis 12. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of faculty behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 58, 60, 62, 64 and 66 from which the F-scores were derived. The F-values of 0.459, 0.363, 0.670, 0.365 and 0.304 yielded p-values of .632, .696, .512, .695 and .738, respectively. Based upon those findings, it was concluded that there was no significant difference between school climate means (column) as they related to principal ratings on "provides orderly atmosphere" and principal's age, gender, total years of teaching or administrative experience, or school size as determined by OCDQ subtest scores for characteristics of faculty behaviors. Cell mean values are summarized in Tables 59, 61, 63, 65 and 67.

Main effects (row) were found to be significant related to principal's age. The analysis of variance is summarized in Table 58 from which the F-score of 6.806

yielded a p-value of .001. Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant difference between school climate means (row) as they related to principal ratings on "provides orderly atmosphere" and principal's age. Cell mean values are displayed in Table 59.

Table 58. Analysis of variance of characteristics of faculty behaviors by principal's age and "provides orderly atmosphere" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 832.071        | 4   | 208.018     | 3.602 | .007      |
| Age                       | 786.124        | 2   | 393.062     | 6.806 | .001*     |
| Ord. Atmosph.             | 53.006         | 2   | 26.503      | 0.459 | .632      |
| <u>2-Way Interactions</u> | 468.369        | 4   | 117.092     | 2.027 | .089      |
| Age/Ord. Atmosph.         | 468.369        | 4   | 117.092     | 2.027 | .089      |
| Explained                 | 1300.440       | 8   | 162.555     | 2.815 | .005      |
| Residual                  | 34363.600      | 595 | 57.754      |       |           |
| Total                     | 35664.040      | 603 | 59.144      |       |           |

\*Significant at alpha = .05.

Table 59. Cell means of characteristics of faculty behaviors by principal's age and "provides orderly atmosphere" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 147                      | 84.29 | 328             | 87.03 | 129                    | 85.78 | 604                         | 86.10 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 132                                          | 86.01 | 377                       | 85.97 | 95              | 86.74 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|----------------------------|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                            | <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
|                            | No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 35 or younger              | 34                                           | 85.59 | 90                        | 83.99 | 23              | 83.57 |
| 36 to 46                   | 73                                           | 87.34 | 207                       | 86.85 | 48              | 87.35 |
| 47 or older                | 25                                           | 82.68 | 80                        | 85.92 | 24              | 88.54 |



Table 60. Analysis of variance of characteristics of faculty behaviors by principal's gender and "provides orderly atmosphere" ratings.

| Source of Variation         | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-----------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>         | 63.123         | 3   | 21.041      | 0.357 | .784      |
| Gender                      | 17.176         | 1   | 17.176      | 0.291 | .590      |
| Ord. Atmosph.               | 42.859         | 2   | 21.430      | 0.363 | .696      |
| <u>2-Way Interactions</u>   | 315.893        | 2   | 157.947     | 2.677 | .070      |
| Gender/<br>Orderly Atmosph. | 315.893        | 2   | 157.947     | 2.677 | .070      |
| Explained                   | 379.016        | 5   | 75.803      | 1.285 | .269      |
| Residual                    | 35285.023      | 598 | 59.005      |       |           |
| Total                       | 35664.040      | 603 | 59.144      |       |           |

Table 61. Cell means of characteristics of faculty behaviors by principal's gender and "provides orderly atmosphere" ratings.

| <u>Principal's Gender</u> |       |               |       |                         |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       | <u>Total Population</u> |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 532                       | 86.03 | 72            | 86.60 | 604                     | 86.10 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 132                                          | 86.01 | 377                       | 85.97 | 95              | 86.74 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|---------------------------|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                           | <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
|                           | No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| Male                      | 113                                          | 85.40 | 339                       | 86.01 | 80              | 87.00 |
| Female                    | 19                                           | 89.63 | 38                        | 85.58 | 15              | 85.33 |

Table 62. Analysis of variance of characteristics of faculty behaviors by principal's teaching experience and "provides orderly atmosphere" ratings.

| Source of Variation                  | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|--------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                  | 651.676        | 4   | 162.919     | 2.841 | .024      |
| Teaching Exper.                      | 605.729        | 2   | 302.864     | 5.282 | .005*     |
| Ord. Atmosph.                        | 76.801         | 2   | 38.401      | 0.670 | .512      |
| <u>2-Way Interactions</u>            | 894.645        | 4   | 223.661     | 3.901 | .004*     |
| Teaching Exper./<br>Orderly Atmosph. | 894.645        | 4   | 223.661     | 3.901 | .004*     |
| Explained                            | 1546.321       | 8   | 193.290     | 3.371 | .001      |
| Residual                             | 34117.719      | 595 | 57.341      |       |           |
| Total                                | 35664.040      | 603 | 59.144      |       |           |

\*Significant at alpha = .05.

Table 63. Cell means of characteristics of faculty behaviors by principal's teaching experience and "provides orderly atmosphere" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 155                                            | 87.74 | 289            | 85.39 | 160               | 85.79 | 604                     | 86.10 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 132                                          | 86.01 | 377                    | 85.97 | 95              | 86.74 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                                        | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 39                                           | 90.08 | 98                     | 86.16 | 18              | 91.22 |
| 6 to 10                                | 49                                           | 84.47 | 183                    | 85.78 | 57              | 84.95 |
| 11 or more                             | 44                                           | 84.11 | 96                     | 86.15 | 20              | 87.80 |

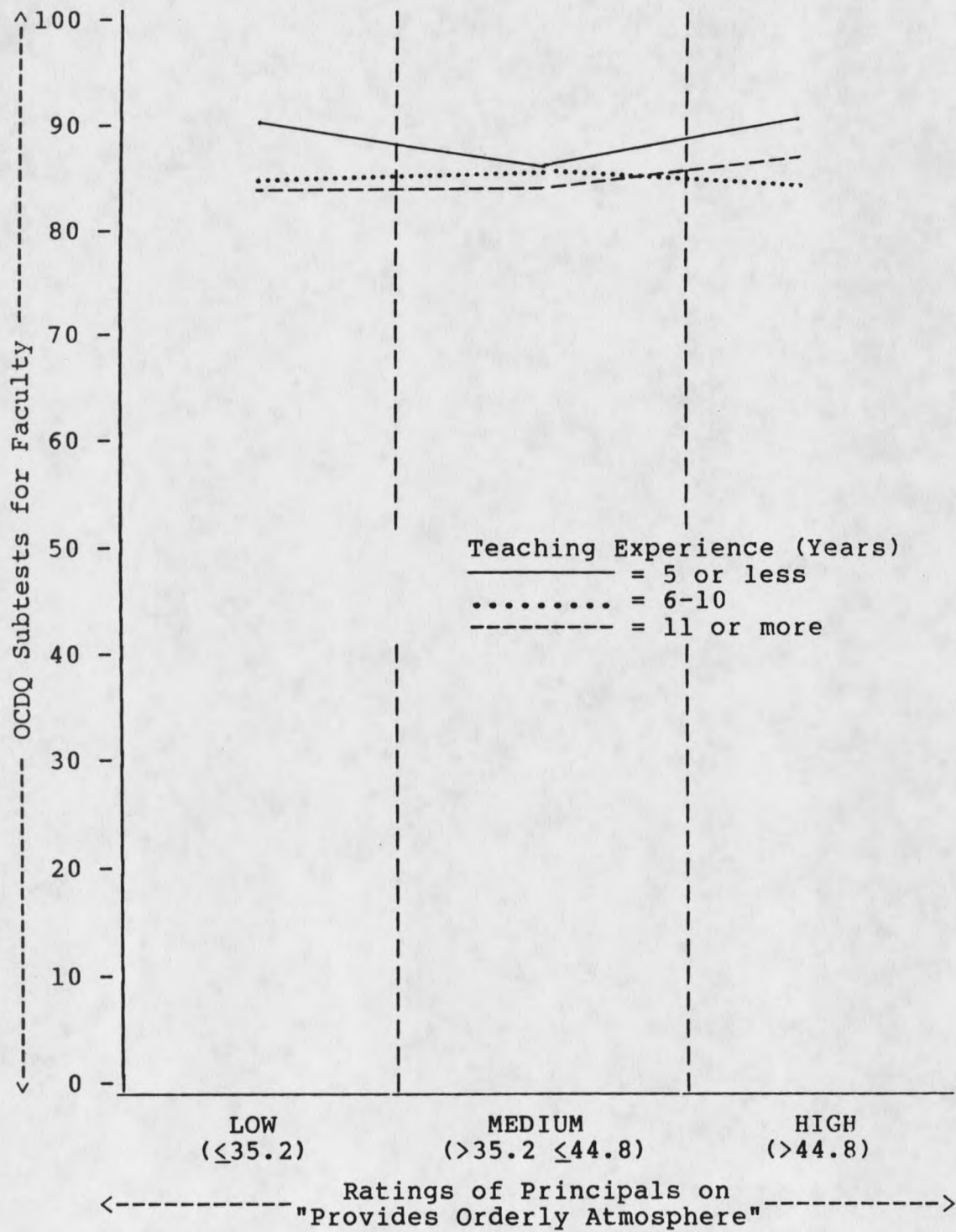


Figure 10. Graphical representation of cell mean values reported in Table 63.

Table 64. Analysis of variance of characteristics of faculty behaviors by principal's administrative experience and "provides orderly atmosphere" ratings.

| Source of Variation                 | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                 | 306.099        | 4   | 76.525      | 1.307 | .266      |
| Administ. Exper.                    | 260.151        | 2   | 130.076     | 2.221 | .109      |
| Orderly Atmosph.                    | 42.710         | 2   | 21.355      | 0.365 | .695      |
| <u>2-Way Interactions</u>           | 516.025        | 4   | 129.006     | 2.203 | .067      |
| Administ. Exp./<br>Orderly Atmosph. | 516.025        | 4   | 129.006     | 2.203 | .067      |
| Explained                           | 822.124        | 8   | 102.765     | 1.755 | .083      |
| Residual                            | 34841.916      | 595 | 58.558      |       |           |
| Total                               | 35664.040      | 603 | 59.144      |       |           |

Table 65. Cell means of characteristics of faculty behaviors by principal's administrative experience and "provides orderly atmosphere" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 152                                          | 85.72 | 258            | 85.60 | 194               | 87.06 | 604                     | 86.10 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 132                                          | 86.01 | 377                    | 85.97 | 95              | 86.74 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|------------------------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                          | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                                          | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                                | 40                                           | 86.88 | 97                     | 85.70 | 15              | 82.80 |
| 6 to 10                                  | 59                                           | 86.07 | 153                    | 85.27 | 46              | 86.11 |
| 11 or more                               | 33                                           | 84.85 | 127                    | 87.02 | 34              | 89.32 |

Table 66. Analysis of variance of characteristics of faculty behaviors by school size and "provides orderly atmosphere" ratings.

| Source of Variation              | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|----------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>              | 291.446        | 4   | 72.861      | 1.232 | .296      |
| School Size                      | 245.498        | 2   | 122.749     | 2.075 | .126      |
| Orderly Atmosph.                 | 35.999         | 2   | 17.999      | 0.304 | .738      |
| <u>2-Way Interactions</u>        | 170.100        | 4   | 42.525      | 0.719 | .579      |
| School Size/<br>Orderly Atmosph. | 170.100        | 4   | 42.525      | 0.719 | .579      |
| Explained                        | 461.545        | 8   | 57.693      | 0.975 | .454      |
| Residual                         | 35202.494      | 595 | 59.164      |       |           |
| Total                            | 35664.040      | 603 | 59.144      |       |           |



Table 67. Cell means of characteristics of faculty behaviors by school size and "provides orderly atmosphere" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total</u>      |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             | <u>Population</u> |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> |
| 159                | 85.09       | 198               | 86.77       | 247                | 86.21       | 604               | 86.10       |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 132                                          | 86.01 | 377                    | 85.97 | 95              | 86.74 |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                        | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                        | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| Under 200              | 64                                           | 85.55 | 82                     | 85.16 | 13              | 82.38 |
| 200 to 350             | 30                                           | 86.40 | 125                    | 86.58 | 43              | 87.58 |
| 351 or more            | 38                                           | 86.47 | 170                    | 85.91 | 39              | 87.26 |

Hypothesis 13. There will be no significant interaction between the ratings of principals on "supports teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 68, 70, 72, 74 and 76 from which F-scores were derived. The F-values of 3.133, 3.251, 3.064, 2.357 and 0.554 yielded p-values of .014, .039, .016, .053 and .697, respectively. Two-way interactions existed between principal's age, gender, and total years of teaching experience as determined by OCDQ subtest scores for characteristics of principals' behaviors.

Based upon these findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "supports teachers" and principal's age, gender, and total years of teaching experience as determined by OCDQ subtest scores for characteristics of principals' behaviors. Cell mean values are graphically displayed in Figures 11, 12 and 13.

Hypothesis 14. There will be no significant difference between school climate means (row or column) as they

relate to the ratings of principals on "supports teachers" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 68, 70, 72, 74 and 76 from which the F-scores were derived. The F-values of 11.406, 11.368, 11.753, 11.197 and 10.150 all yielded p-values of .000. The probability of obtaining those values by chance alone is .000. Based upon those findings, it was concluded that there were significant differences between school climate means (column) as they related to the ratings of principals on "supports teachers" and principal's total years of administrative experience and school size as determined by OCDQ subtest scores for characteristics of principals' behaviors. Based upon those findings, the null hypothesis was rejected. Cell mean values are summarized in Tables 69, 71, 73, 75 and 77.

Main effects (row) were not found to be significant as they related to the ratings of principals on "supports teachers" and the independent variables as determined by

OCDQ subtest scores for characteristics of principals' behaviors.

Table 68. Analysis of variance of characteristics of principals' behaviors by principal's age and "supports teachers" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 3321.002       | 4   | 830.250     | 8.069  | .000      |
| Age                       | 871.951        | 2   | 435.976     | 4.237  | .015*     |
| Supports Teachers         | 2349.428       | 2   | 1174.714    | 11.416 | .000*     |
| <u>2-Way Interactions</u> | 1289.584       | 4   | 322.396     | 3.133  | .014*     |
| Age/Supports Tchrs.       | 1289.584       | 4   | 322.396     | 3.133  | .014*     |
| Explained                 | 4610.586       | 8   | 576.323     | 5.601  | .000      |
| Residual                  | 61842.990      | 601 | 102.900     |        |           |
| Total                     | 66453.575      | 609 | 109.119     |        |           |

\*Significant at alpha = .05.

Table 69. Cell means of characteristics of principals' behaviors by principal's age and "supports teachers" ratings.

| Principal's Age  |       |          |       |                |       |                     |       |
|------------------|-------|----------|-------|----------------|-------|---------------------|-------|
| 35<br>or Younger |       | 36 to 46 |       | 47<br>or Older |       | Total<br>Population |       |
| No.              | Mean  | No.      | Mean  | No.            | Mean  | No.                 | Mean  |
| 151              | 83.81 | 329      | 86.83 | 130            | 85.32 | 610                 | 85.76 |

| "Supports Teachers" Ratings |       |              |       |       |       |
|-----------------------------|-------|--------------|-------|-------|-------|
| ≤32.5                       |       | >32.5; ≤45.5 |       | >45.5 |       |
| No.                         | Mean  | No.          | Mean  | No.   | Mean  |
| 102                         | 82.88 | 421          | 85.57 | 87    | 90.03 |

<----- Two-Way Cell Means ----->

| Principal's<br>Age | "Supports Teachers" Ratings |       |              |       |       |       |
|--------------------|-----------------------------|-------|--------------|-------|-------|-------|
|                    | ≤32.5                       |       | >32.5; ≤45.5 |       | >45.5 |       |
|                    | No.                         | Mean  | No.          | Mean  | No.   | Mean  |
| 35 or younger      | 31                          | 83.68 | 105          | 83.73 | 15    | 84.67 |
| 36 to 46           | 54                          | 83.59 | 229          | 87.03 | 46    | 89.63 |
| 47 or older        | 17                          | 79.18 | 87           | 83.97 | 26    | 93.85 |

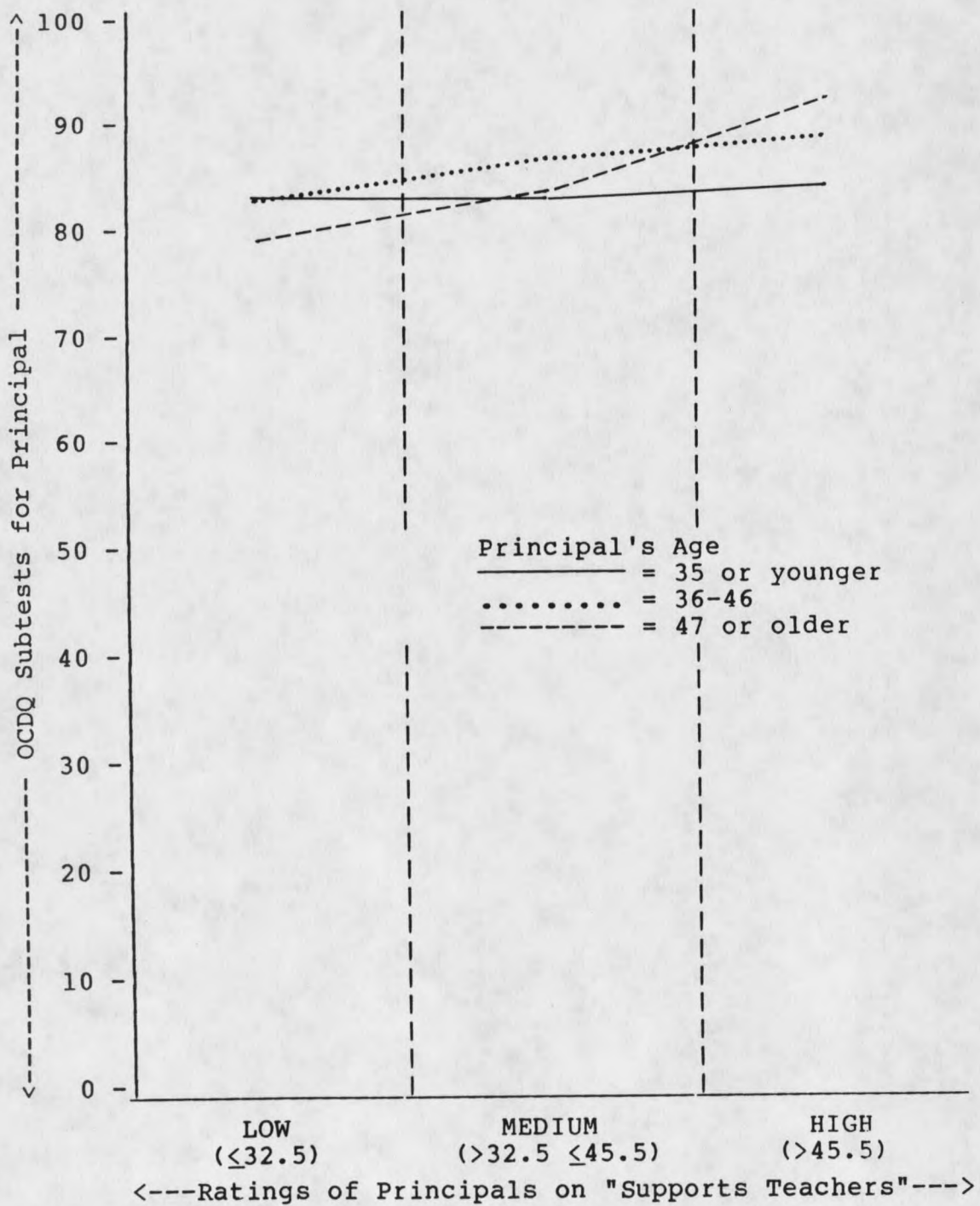


Figure 11. Graphical representation of cell mean values reported in Table 69.

Table 70. Analysis of variance of characteristics of principals' behaviors by principal's gender and "supports teachers" ratings.

| Source of Variation          | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>          | 2487.740       | 3   | 829.247     | 7.914  | .000      |
| Gender                       | 38.690         | 1   | 38.690      | 0.369  | .544      |
| Supports Teachers            | 2382.204       | 2   | 1191.102    | 11.368 | .000*     |
| <u>2-Way Interactions</u>    | 681.187        | 2   | 340.593     | 3.251  | .039*     |
| Gender/<br>Supports Teachers | 681.187        | 2   | 340.593     | 3.251  | .039*     |
| Explained                    | 3168.927       | 5   | 633.785     | 6.049  | .000      |
| Residual                     | 63284.648      | 604 | 104.776     |        |           |
| Total                        | 66453.575      | 609 | 109.119     |        |           |

\*Significant at alpha = .05.

Table 71. Cell means of characteristics of principals' behaviors by principal's gender and "supports teachers" ratings.

| <u>Principal's Gender</u> |       |               |       |                         |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       | <u>Total Population</u> |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 540                       | 85.61 | 70            | 86.91 | 610                     | 85.76 |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 102                                | 82.88 | 421                       | 85.57 | 87              | 90.03 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|---------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                           | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                           | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| Male                      | 89                                 | 82.31 | 382                       | 85.76 | 69              | 89.01 |
| Female                    | 13                                 | 86.77 | 39                        | 83.72 | 18              | 93.94 |



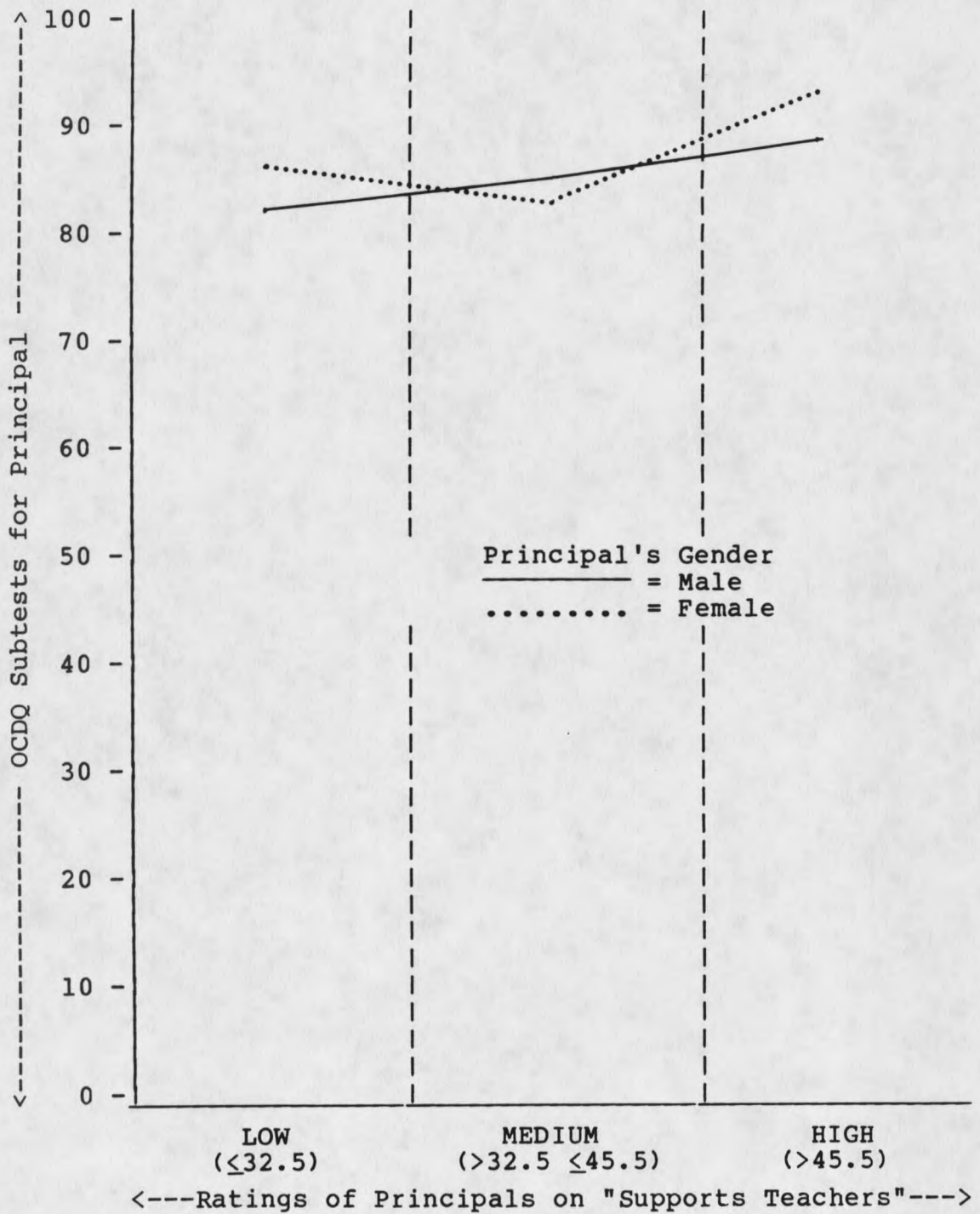


Figure 12. Graphical representation of cell mean values reported in Table 71.

Table 72. Analysis of variance of characteristics of principals' behaviors by principal's teaching experience on "supports teachers" ratings.

| Source of Variation                   | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                   | 2984.960       | 4   | 746.240     | 7.210  | .000      |
| Teaching Exper.                       | 535.909        | 2   | 267.955     | 2.589  | .076      |
| Supports Teachers                     | 2432.752       | 2   | 1216.376    | 11.753 | .000*     |
| <u>2-Way Interactions</u>             | 1268.593       | 4   | 317.148     | 3.064  | .016*     |
| Teaching Exper./<br>Supports Teachers | 1268.593       | 4   | 317.148     | 3.064  | .016*     |
| Explained                             | 4253.553       | 8   | 531.694     | 5.137  | .000      |
| Residual                              | 62200.023      | 601 | 103.494     |        |           |
| Total                                 | 66453.575      | 609 | 109.119     |        |           |

\*Significant at alpha = .05.

Table 73. Cell means of characteristics of principals' behaviors by principal's teaching experience and "supports teachers" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 162                                            | 86.73 | 288            | 86.06 | 160               | 84.23 | 610                     | 85.76 |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 82.88 | 421                    | 85.57 | 87              | 90.03 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                                        | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 28                                 | 85.61 | 121                    | 86.31 | 13              | 93.00 |
| 6 to 10                                | 39                                 | 85.00 | 195                    | 85.70 | 54              | 88.15 |
| 11 or more                             | 35                                 | 78.34 | 105                    | 84.49 | 20              | 93.20 |

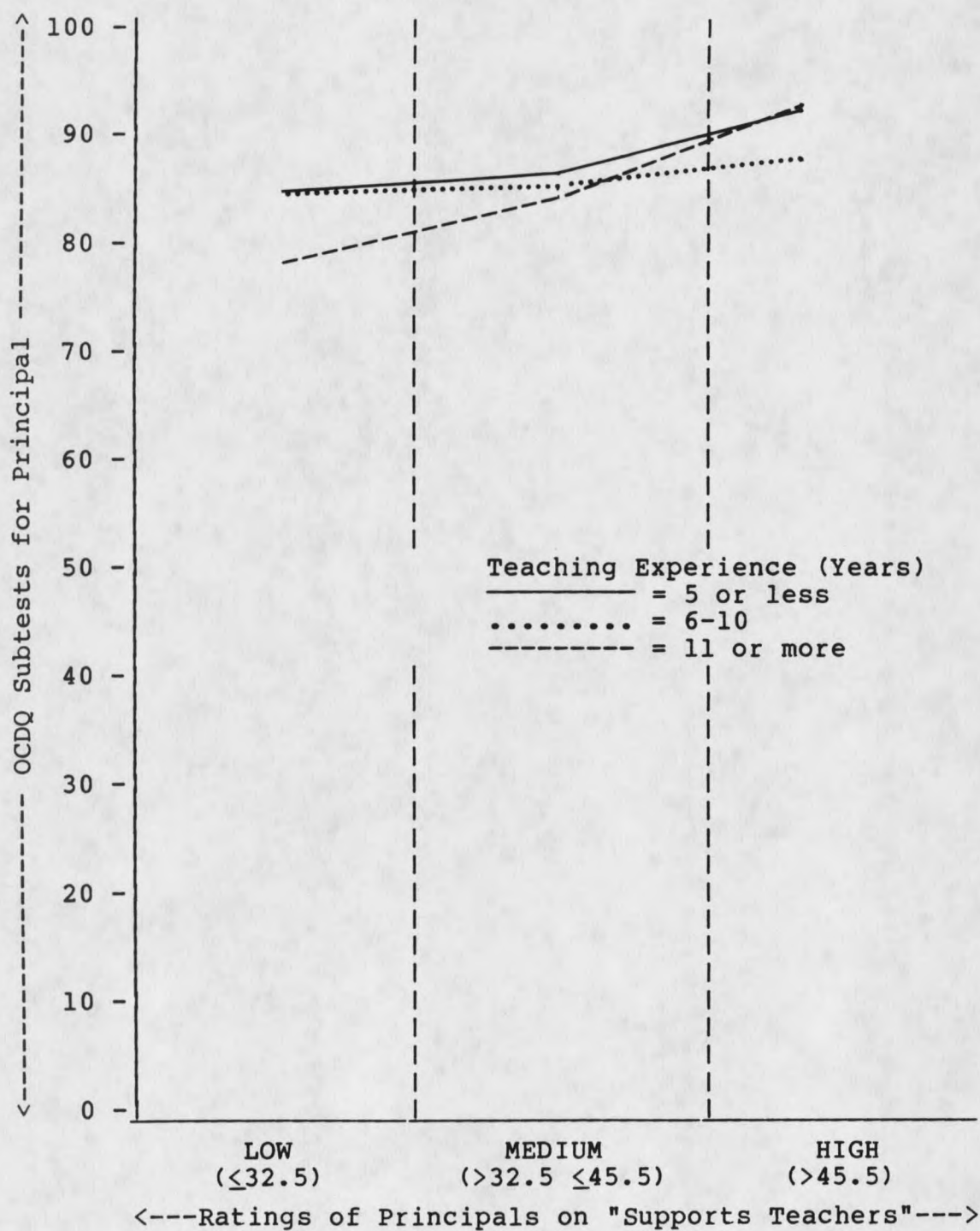


Figure 13. Graphical representation of cell mean values reported in Table 73.

Table 74. Analysis of variance of characteristics of principals' behaviors by principal's administrative experience and "supports teachers" ratings.

| Source of Variation                  | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|--------------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>                  | 2574.214       | 4   | 643.554     | 6.150  | .000      |
| Administ. Exper.                     | 125.164        | 2   | 62.582      | 0.598  | .550      |
| Supports Teachers                    | 2343.463       | 2   | 1171.731    | 11.197 | .000*     |
| <u>2-Way Interactions</u>            | 986.466        | 4   | 246.617     | 2.357  | .053      |
| Administ. Exp./<br>Supports Teachers | 986.466        | 4   | 246.617     | 2.357  | .053      |
| Explained                            | 3560.680       | 8   | 445.085     | 4.253  | .000      |
| Residual                             | 62892.895      | 601 | 104.647     |        |           |
| Total                                | 66453.575      | 609 | 109.119     |        |           |

\*Significant at alpha = .05.

Table 75. Cell means of characteristics of principals' behaviors by principal's administrative experience and "supports teachers" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 161                                          | 85.94 | 254            | 85.07 | 195               | 86.50 | 610                     | 85.76 |

| <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 102                                | 82.88 | 421                    | 85.57 | 87              | 90.03 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Supports Teachers" Ratings</u> |       |                        |       |                 |       |
|------------------------------------------|------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                          | <u>≤32.5</u>                       |       | <u>&gt;32.5; ≤45.5</u> |       | <u>&gt;45.5</u> |       |
|                                          | No.                                | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                                | 34                                 | 84.65 | 108                    | 85.81 | 19              | 89.00 |
| 6 to 10                                  | 43                                 | 84.12 | 183                    | 84.80 | 28              | 88.36 |
| 11 or more                               | 25                                 | 78.36 | 130                    | 86.46 | 40              | 91.70 |

Table 76. Analysis of variance of characteristics of principals' behaviors by school size and "supports teachers" ratings.

| Source of Variation               | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|-----------------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>               | 2752.416       | 4   | 688.104     | 6.516  | .000      |
| School Size                       | 303.365        | 2   | 151.683     | 1.436  | .239      |
| Supports Teachers                 | 2143.688       | 2   | 1071.844    | 10.150 | .000*     |
| <u>2-Way Interactions</u>         | 233.807        | 4   | 58.452      | 0.554  | .697      |
| School Size/<br>Supports Teachers | 233.807        | 4   | 58.452      | 0.554  | .697      |
| Explained                         | 2986.223       | 8   | 373.278     | 3.535  | .001      |
| Residual                          | 63467.353      | 601 | 105.603     |        |           |
| Total                             | 66453.575      | 609 | 109.119     |        |           |

\*Significant at alpha = .05.

Table 77. Cell means of characteristics of principals' behaviors by school size and "supports teachers" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total</u>      |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             | <u>Population</u> |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> |
| 167                | 84.16       | 201               | 86.58       | 242                | 86.18       | 610               | 85.76       |

| <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
| No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| 102                                | 82.88 | 421                       | 85.57 | 87              | 90.03 |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Supports Teachers" Ratings</u> |       |                           |       |                 |       |
|------------------------|------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                        | <u>&lt;32.5</u>                    |       | <u>&gt;32.5; &lt;45.5</u> |       | <u>&gt;45.5</u> |       |
|                        | No.                                | Mean  | No.                       | Mean  | No.             | Mean  |
| Under 200              | 39                                 | 81.21 | 115                       | 84.80 | 13              | 87.31 |
| 200 to 350             | 26                                 | 82.46 | 134                       | 85.94 | 41              | 91.29 |
| 351 or more            | 37                                 | 84.95 | 172                       | 85.80 | 33              | 89.55 |



Hypothesis 15. There will be no significant interaction between the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 78, 80, 82, 84 and 86 from which F-scores were derived. The F-values of 2.715, 0.633, 3.055, 2.294 and 0.781 yielded p-values of .029, .532, .017, .058 and .538, respectively. Two-way interactions existed between principal's age and principal's total years of teaching experience and the ratings of principals on "emphasizes achievement" as determined by OCDQ subtest scores for characteristics of principals' behaviors.

Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "emphasizes achievement" and principal's age and total years of teaching experience as determined by OCDQ subtest scores for characteristics of principals' behaviors. Cell mean values are graphically displayed in Figures 14 and 15.

Hypothesis 16. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "emphasizes achievement" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 78, 80, 82, 84 and 86 from which the F-scores were derived. The F-values of 9.994, 10.030, 9.576, 9.646 and 8.973 all yielded p-values of .000. The probability of obtaining those values by chance alone is .000. Based upon those findings, it was concluded that there were significant differences between school climate means (column) as they related to the ratings of principals on "emphasizes achievement" and principal's gender, total years of administrative experience, and school size as determined by OCDQ subtest scores for characteristics of principals' behaviors. Cell mean values are summarized in Tables 79, 81, 83, 85 and 87.

Main effects (row) were not found to be significant as they related to the ratings of principals on "emphasizes achievement" and the independent variables as determined by

OCDQ subtest scores for characteristics of principals' behaviors.

Table 78. Analysis of variance of characteristics of principals' behaviors by principal's age and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 3045.672       | 4   | 761.418     | 7.285 | .000      |
| Age                       | 923.108        | 2   | 461.554     | 4.416 | .012*     |
| Emph. Achvmt.             | 2088.962       | 2   | 1044.481    | 9.994 | .000*     |
| <u>2-Way Interactions</u> | 1135.222       | 4   | 283.805     | 2.715 | .029*     |
| Age/Emph. Achvmt.         | 1135.222       | 4   | 283.805     | 2.715 | .029*     |
| Explained                 | 4180.894       | 8   | 522.612     | 5.000 | .000      |
| Residual                  | 62917.807      | 602 | 104.515     |       |           |
| Total                     | 67098.700      | 610 | 109.998     |       |           |

\*Significant at alpha = .05.

Table 79. Cell means of characteristics of principals' behaviors by principal's age and "emphasizes achievement" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 150                      | 83.77 | 331             | 86.77 | 130                    | 85.32 | 611                         | 85.72 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 87                                      | 82.74 | 439                    | 85.55 | 85              | 89.68 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|----------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                            | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                            | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 35 or younger              | 29                                      | 81.52 | 99                     | 84.24 | 22              | 84.59 |
| 36 to 46                   | 47                                      | 84.00 | 239                    | 86.72 | 45              | 89.89 |
| 47 or older                | 11                                      | 80.55 | 101                    | 84.04 | 18              | 95.39 |

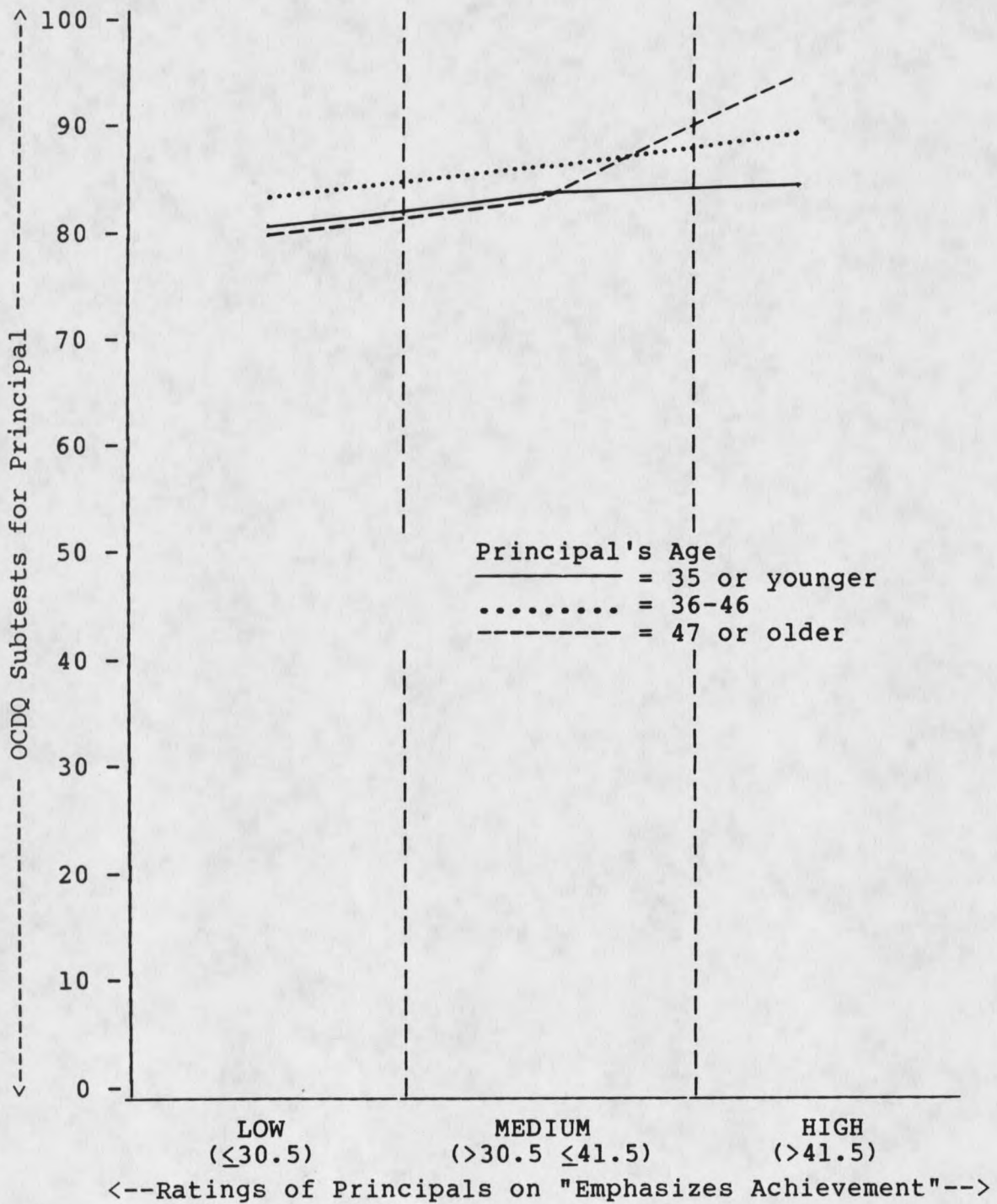


Figure 14. Graphical representation of cell mean values reported in Table 79.

Table 80. Analysis of variance of characteristics of principals' behaviors by principal's gender and "emphasizes achievement" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F      | Sig. of F |
|---------------------------|----------------|-----|-------------|--------|-----------|
| <u>Main Effects</u>       | 2245.758       | 3   | 748.586     | 6.998  | .000      |
| Gender                    | 123.193        | 1   | 123.193     | 1.152  | .284      |
| Emph. Achvmt.             | 2145.853       | 2   | 1072.927    | 10.030 | .000*     |
| <u>2-Way Interactions</u> | 135.336        | 2   | 67.668      | 0.633  | .532      |
| Gender/<br>Emph. Achvmt.  | 135.336        | 2   | 67.668      | 0.633  | .532      |
| Explained                 | 2381.094       | 5   | 476.219     | 4.452  | .001      |
| Residual                  | 64717.607      | 605 | 106.971     |        |           |
| Total                     | 67098.700      | 610 | 109.998     |        |           |

\*Significant at alpha = .05.

Table 81. Cell means of characteristics of principals' behaviors by principal's gender and "emphasizes achievement" ratings.

| <u>Principal's Gender</u> |       |               |       |     |      | <u>Total Population</u> |       |
|---------------------------|-------|---------------|-------|-----|------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       |     |      |                         |       |
| No.                       | Mean  | No.           | Mean  | No. | Mean | No.                     | Mean  |
| 542                       | 85.58 | 69            | 86.86 |     |      | 611                     | 85.72 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 87                                      | 82.74 | 439                    | 85.55 | 85              | 89.68 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|---------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                           | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                           | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| Male                      | 75                                      | 82.81 | 391                    | 85.41 | 76              | 89.17 |
| Female                    | 12                                      | 82.25 | 48                     | 86.67 | 9               | 94.00 |

Table 82. Analysis of variance of characteristics of principals' behaviors by principal's teaching experience and "emphasizes achievement" ratings.

| Source of Variation               | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-----------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>               | 2599.715       | 4   | 649.929     | 6.189 | .000      |
| Teaching Exper.                   | 477.151        | 2   | 238.575     | 2.272 | .104      |
| Emph. Achvmt.                     | 2011.064       | 2   | 1005.532    | 9.576 | .000*     |
| <u>2-Way Interactions</u>         | 1283.173       | 4   | 320.793     | 3.055 | .017*     |
| Teaching Exper./<br>Emph. Achvmt. | 1283.173       | 4   | 320.793     | 3.055 | .017*     |
| Explained                         | 3882.888       | 8   | 485.361     | 4.622 | .000      |
| Residual                          | 63215.812      | 602 | 105.010     |       |           |
| Total                             | 67098.700      | 610 | 109.998     |       |           |

\*Significant at alpha = .05.



Table 83. Cell means of characteristics of principals' behaviors by principal's teaching experience and "emphasizes achievement" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 162                                            | 86.57 | 289            | 86.15 | 160               | 84.10 | 611                     | 85.72 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 87                                      | 82.74 | 439                    | 85.55 | 85              | 89.68 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                                        | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 24                                      | 85.13 | 112                    | 86.04 | 26              | 90.15 |
| 6 to 10                                | 37                                      | 82.43 | 211                    | 86.57 | 41              | 87.29 |
| 11 or more                             | 26                                      | 80.96 | 116                    | 83.20 | 18              | 94.44 |

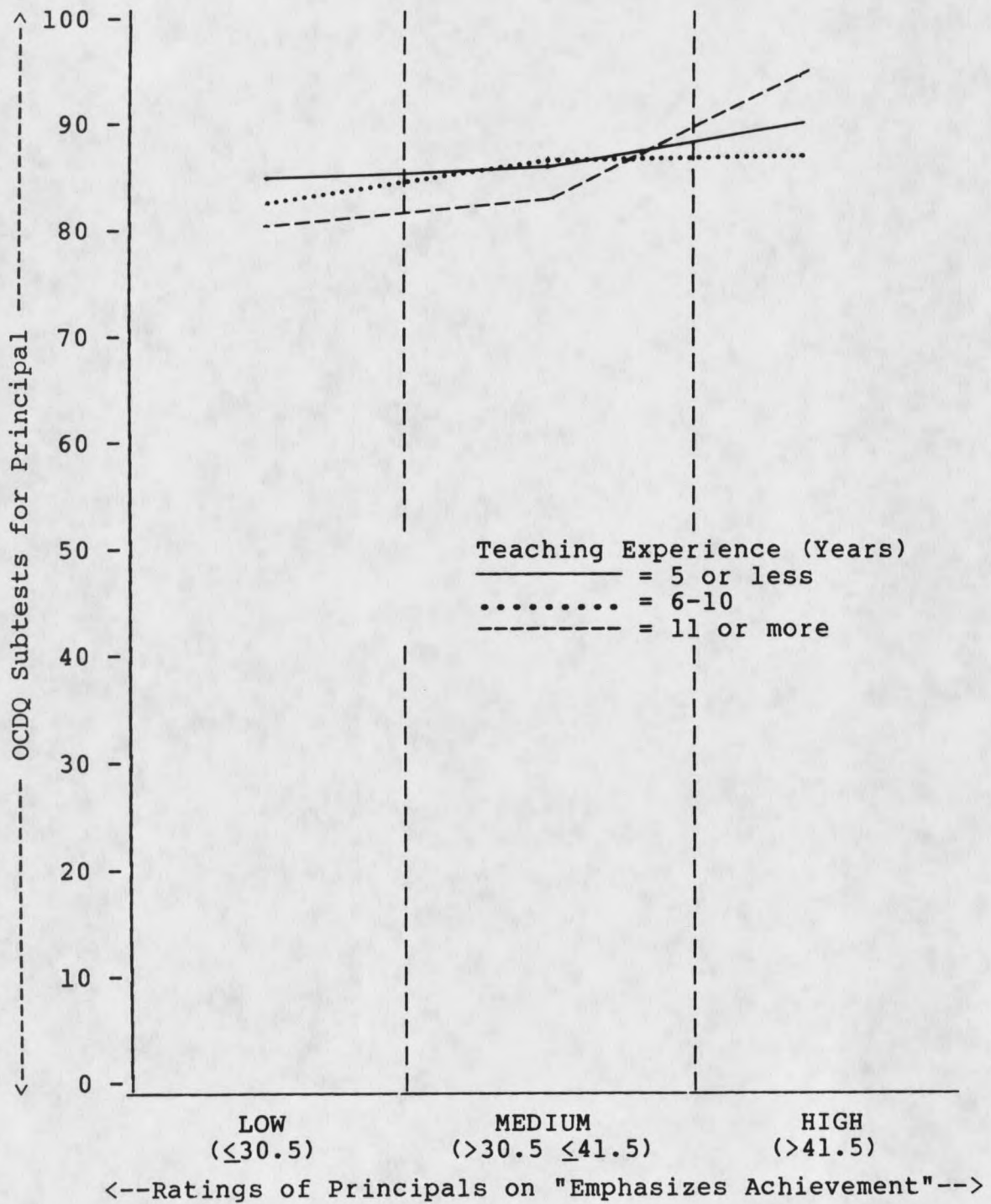


Figure 15. Graphical representation of cell mean values reported in Table 83.

Table 84. Analysis of variance of characteristics of principals' behaviors by principal's administrative experience and "emphasizes achievement" ratings.

| Source of Variation              | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|----------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>              | 2256.400       | 4   | 564.100     | 5.317 | .000      |
| Administ. Exper.                 | 133.835        | 2   | 66.917      | 0.631 | .533      |
| Emph. Achvmt.                    | 2046.693       | 2   | 1023.347    | 9.646 | .000*     |
| <u>2-Way Interactions</u>        | 973.366        | 4   | 243.341     | 2.294 | .058      |
| Administ. Exp./<br>Emph. Achvmt. | 973.366        | 4   | 243.341     | 2.294 | .058      |
| Explained                        | 3229.765       | 8   | 403.721     | 3.805 | .000      |
| Residual                         | 63868.935      | 602 | 106.095     |       |           |
| Total                            | 67098.700      | 610 | 109.998     |       |           |

\*Significant at alpha = .05.

Table 85. Cell means of characteristics of principals' behaviors by principal's administrative experience and "emphasizes achievement" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 158                                          | 85.98 | 253            | 85.05 | 200               | 86.37 | 611                     | 85.72 |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 87                                      | 82.74 | 439                    | 85.55 | 85              | 89.68 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|------------------------------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                          | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                                          | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                                | 29                                      | 81.59 | 108                    | 86.73 | 21              | 88.19 |
| 6 to 10                                  | 42                                      | 84.67 | 179                    | 84.68 | 32              | 87.63 |
| 11 or more                               | 16                                      | 79.75 | 152                    | 85.73 | 32              | 92.72 |

Table 86. Analysis of variance of characteristics of principals' behaviors by school size and "emphasizes achievement" ratings.

| Source of Variation           | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>           | 2518.396       | 4   | 629.599     | 5.899 | .000      |
| School Size                   | 395.831        | 2   | 197.916     | 1.854 | .157      |
| Emph. Achvmt.                 | 1915.267       | 2   | 957.634     | 8.973 | .000*     |
| <u>2-Way Interactions</u>     | 333.408        | 4   | 83.352      | 0.781 | .538      |
| School Size/<br>Emph. Achvmt. | 333.408        | 4   | 83.352      | 0.781 | .538      |
| Explained                     | 2851.803       | 8   | 356.475     | 3.340 | .001      |
| Residual                      | 64246.897      | 602 | 106.722     |       |           |
| Total                         | 67098.700      | 610 | 109.998     |       |           |

\*Significant at alpha = .05.

Table 87. Cell means of characteristics of principals' behaviors by school size and "emphasizes achievement" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total<br/>Population</u> |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-----------------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             |                             |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>                  | <u>Mean</u> |
| 165                | 84.13       | 199               | 86.59       | 247                | 86.09       | 611                         | 85.72       |
| <hr/>              |             |                   |             |                    |             |                             |             |

| <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
| No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| 87                                      | 82.74 | 439                    | 85.55 | 85              | 89.68 |

<----- Two-Way Cell Means ----->

| <u>School Size</u> | <u>"Emphasizes Achievement" Ratings</u> |       |                        |       |                 |       |
|--------------------|-----------------------------------------|-------|------------------------|-------|-----------------|-------|
|                    | <u>≤30.5</u>                            |       | <u>&gt;30.5; ≤41.5</u> |       | <u>&gt;41.5</u> |       |
|                    | No.                                     | Mean  | No.                    | Mean  | No.             | Mean  |
| Under 200          | 29                                      | 80.76 | 121                    | 84.69 | 15              | 86.13 |
| 200 to 350         | 27                                      | 82.07 | 134                    | 86.42 | 38              | 90.42 |
| 351 or more        | 31                                      | 85.16 | 184                    | 85.48 | 32              | 90.47 |

Hypothesis 17. There will be no significant interaction between the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Interactions were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 88, 90, 92, 94 and 96 from which F-scores were derived. The F-values of 3.282, 0.168, 2.436, 2.676 and 2.168 yielded p-values of .011, .845, .046, .031 and .071, respectively. Two-way interactions existed between principal's age and total years of teaching and administrative experience and the ratings of principals on "provides orderly atmosphere" as determined by OCDQ subtest scores for characteristics of principals' behaviors.

Based upon those findings, the null hypothesis was rejected. It was concluded that there was a significant interaction between the ratings of principals on "provides orderly atmosphere" and principal's age and total years of teaching and administrative experience as determined by OCDQ subtest scores for characteristics of principals' behaviors. Cell mean values are graphically displayed in Figures 16, 17 and 18.

Hypothesis 18. There will be no significant difference between school climate means (row or column) as they relate to the ratings of principals on "provides orderly atmosphere" and the following set of independent variables as determined by OCDQ subtest scores for characteristics of principals' behaviors: (1) principal's age, (2) principal's gender, (3) principal's total years of teaching experience, (4) principal's total years of administrative experience, and (5) school size.

Main effects (column) were analyzed by a two-way analysis of variance statistical procedure. Analyses of variance are summarized in Tables 88, 90, 92, 94 and 96 from which the F-scores were derived. The F-values of 8.017, 7.828, 7.291, 7.785 and 6.065 yielded p-values of .000, .000, .001 and .002, respectively. Based upon those findings, it was concluded that there were significant differences between school climate means (column) as they related to the ratings of principals on "provides orderly atmosphere" and principal's gender and school size as determined by OCDQ subtest scores for characteristics of principals' behaviors. Cell mean values are summarized in Tables 89, 91, 93, 95 and 97.

Main effects (row) were not found to be significant. Based upon differences in column means, the null hypothesis was rejected. It was concluded that no significant differences existed between school climate means (row) as



they related to the ratings of principals on "provides orderly atmosphere" and principal's age, gender, total years of teaching or administrative experience, or school size.

Table 88. Analysis of variance of characteristics of principals' behaviors by principal's age and "provides orderly atmosphere" ratings.

| Source of Variation       | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|---------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>       | 2597.536       | 4   | 649.384     | 6.134 | .000      |
| Age                       | 894.379        | 2   | 447.190     | 4.224 | .015*     |
| Ord. Atmosph.             | 1697.664       | 2   | 848.832     | 8.017 | .000*     |
| <u>2-Way Interactions</u> | 1389.942       | 4   | 347.485     | 3.282 | .011*     |
| Age/Ord. Atmosph.         | 1389.942       | 4   | 347.485     | 3.282 | .011*     |
| Explained                 | 3987.478       | 8   | 498.435     | 4.708 | .000      |
| Residual                  | 63523.428      | 600 | 105.872     |       |           |
| Total                     | 67510.906      | 608 | 111.038     |       |           |

\*Significant at alpha = .05.

Table 89. Cell means of characteristics of principals' behaviors by principal's age and "provides orderly atmosphere" ratings.

| <u>Principal's Age</u>   |       |                 |       |                        |       |                             |       |
|--------------------------|-------|-----------------|-------|------------------------|-------|-----------------------------|-------|
| <u>35<br/>or Younger</u> |       | <u>36 to 46</u> |       | <u>47<br/>or Older</u> |       | <u>Total<br/>Population</u> |       |
| No.                      | Mean  | No.             | Mean  | No.                    | Mean  | No.                         | Mean  |
| 148                      | 83.83 | 331             | 86.75 | 130                    | 85.32 | 609                         | 85.73 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 126                                          | 82.62 | 388                    | 86.26 | 95              | 87.72 |

<----- Two-Way Cell Means ----->

| <u>Principal's<br/>Age</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                            | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                            | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 35 or younger              | 32                                           | 83.50 | 95                     | 84.28 | 21              | 82.29 |
| 36 to 46                   | 69                                           | 83.52 | 213                    | 87.54 | 49              | 87.88 |
| 47 or older                | 25                                           | 79.00 | 80                     | 85.21 | 25              | 91.96 |

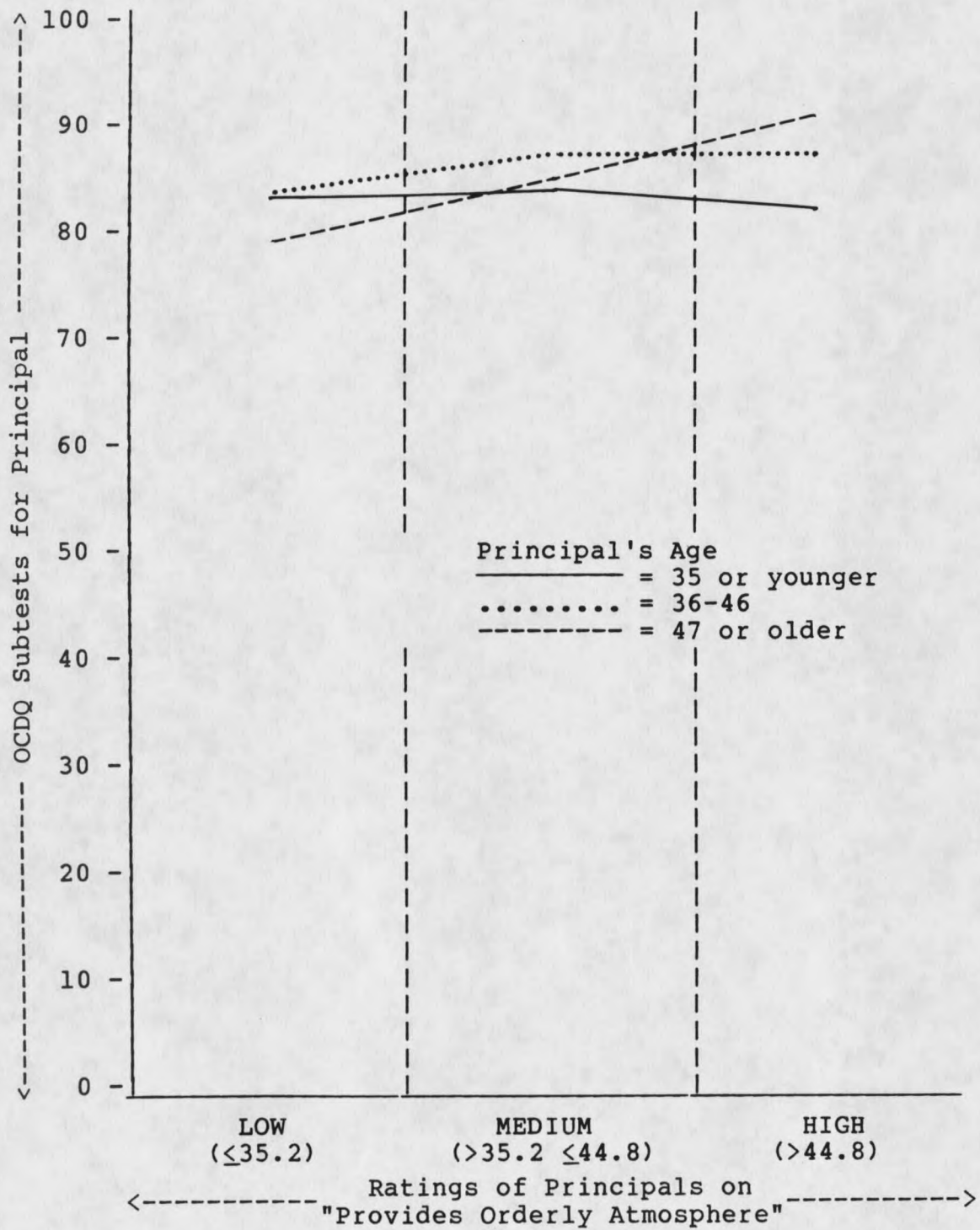


Figure 16. Graphical representation of cell mean values reported in Table 89.

Table 90. Analysis of variance of characteristics of principals' behaviors by principal's gender and "provides orderly atmosphere" ratings.

| Source of Variation         | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-----------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>         | 1840.581       | 3   | 613.527     | 5.637 | .001      |
| Gender                      | 137.424        | 1   | 137.424     | 1.263 | .262      |
| Orderly Atmosph.            | 1704.175       | 2   | 852.087     | 7.828 | .000*     |
| <u>2-Way Interactions</u>   | 36.641         | 2   | 18.320      | 0.168 | .845      |
| Gender/<br>Orderly Atmosph. | 36.641         | 2   | 18.320      | 0.168 | .845      |
| Explained                   | 1877.222       | 5   | 375.444     | 3.449 | .004      |
| Residual                    | 65633.684      | 603 | 108.845     |       |           |
| Total                       | 67510.906      | 608 | 111.038     |       |           |

\*Significant at alpha = .05.

Table 91. Cell means of characteristics of principals' behaviors by principal's gender and "provides orderly atmosphere" ratings.

| <u>Principal's Gender</u> |       |               |       | <u>Total Population</u> |       |
|---------------------------|-------|---------------|-------|-------------------------|-------|
| <u>Male</u>               |       | <u>Female</u> |       |                         |       |
| No.                       | Mean  | No.           | Mean  | No.                     | Mean  |
| 540                       | 85.56 | 69            | 87.06 | 609                     | 85.73 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 126                                          | 82.62 | 388                    | 86.26 | 95              | 87.72 |

<----- Two-Way Cell Means ----->

| <u>Principal's Gender</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|---------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                           | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                           | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| Male                      | 110                                          | 82.31 | 350                    | 86.18 | 80              | 87.35 |
| Female                    | 16                                           | 84.75 | 38                     | 87.00 | 15              | 89.67 |

Table 92. Analysis of variance of characteristics of principals' behaviors by principal's teaching experience and "provides orderly atmosphere" ratings.

| Source of Variation                  | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|--------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                  | 2259.937       | 4   | 564.984     | 5.280 | .000      |
| Teaching Exper.                      | 556.780        | 2   | 278.390     | 2.601 | .075      |
| Orderly Atmosph.                     | 1560.438       | 2   | 780.219     | 7.291 | .001*     |
| <u>2-Way Interactions</u>            | 1042.546       | 4   | 260.637     | 2.436 | .046*     |
| Teaching Exper./<br>Orderly Atmosph. | 1042.546       | 4   | 260.637     | 2.436 | .046*     |
| Explained                            | 3302.483       | 8   | 412.810     | 3.858 | .000      |
| Residual                             | 64208.423      | 600 | 107.014     |       |           |
| Total                                | 67510.906      | 608 | 111.038     |       |           |

\*Significant at alpha = .05.

Table 93. Cell means of characteristics of principals' behaviors by principal's teaching experience and "provides orderly atmosphere" ratings.

| <u>Principal's Teaching Experience (Years)</u> |       |                |       |                   |       |                         |       |
|------------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                               |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                            | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 158                                            | 86.81 | 291            | 86.10 | 160               | 84.01 | 609                     | 85.73 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
| <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 126                                          | 82.62 | 388                    | 86.26 | 95              | 87.72 |

<----- Two-Way Cell Means ----->

| <u>Principal's Tch. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                        |       |                 |       |
|----------------------------------------|----------------------------------------------|-------|------------------------|-------|-----------------|-------|
|                                        | <u>≤35.2</u>                                 |       | <u>&gt;35.2; ≤44.8</u> |       | <u>&gt;44.8</u> |       |
|                                        | No.                                          | Mean  | No.                    | Mean  | No.             | Mean  |
| 5 or less                              | 35                                           | 85.86 | 105                    | 86.39 | 18              | 91.11 |
| 6 to 10                                | 47                                           | 84.26 | 186                    | 86.38 | 58              | 86.71 |
| 11 or more                             | 44                                           | 78.30 | 97                     | 85.90 | 19              | 87.58 |

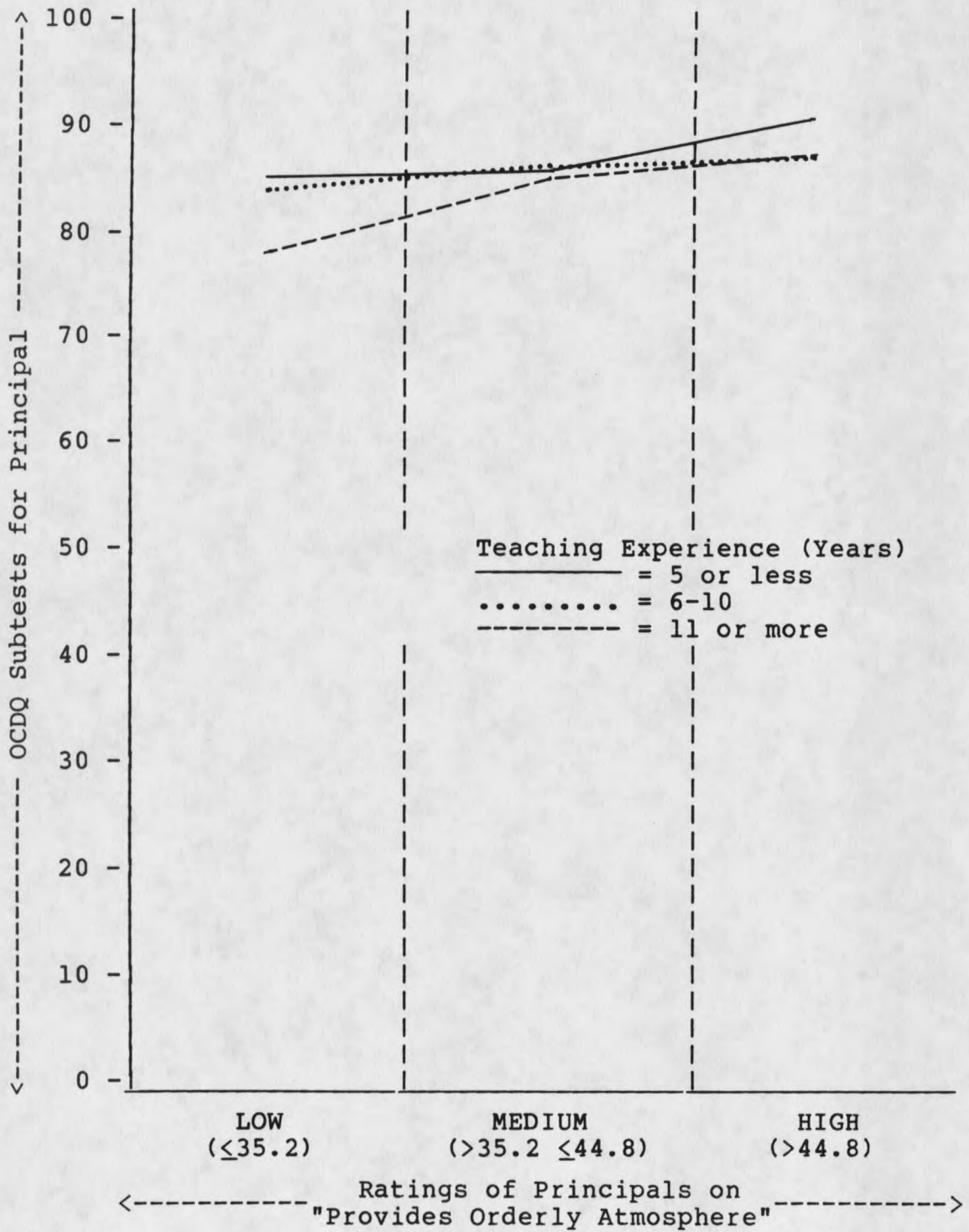


Figure 17. Graphical representation of cell mean values reported in Table 93.



Table 94. Analysis of variance of characteristics of principals' behaviors by principal's administrative experience and "provides orderly atmosphere" ratings.

| Source of Variation                 | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|-------------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>                 | 1876.883       | 4   | 469.221     | 4.366 | .002      |
| Administ. Exper.                    | 173.726        | 2   | 86.863      | 0.808 | .446      |
| Orderly Atmosph.                    | 1673.240       | 2   | 836.620     | 7.785 | .000*     |
| <u>2-Way Interactions</u>           | 1150.512       | 4   | 287.628     | 2.676 | .031*     |
| Administ. Exp./<br>Orderly Atmosph. | 1150.512       | 4   | 287.628     | 2.676 | .031*     |
| Explained                           | 3027.394       | 8   | 378.424     | 3.521 | .001      |
| Residual                            | 64483.512      | 600 | 107.473     |       |           |
| Total                               | 67510.906      | 608 | 111.038     |       |           |

\*Significant at alpha = .05.

Table 95. Cell means of characteristics of principals' behaviors by principal's administrative experience and "provides orderly atmosphere" ratings.

| <u>Principal's Admin. Experience (Years)</u> |       |                |       |                   |       |                         |       |
|----------------------------------------------|-------|----------------|-------|-------------------|-------|-------------------------|-------|
| <u>5 or Less</u>                             |       | <u>6 to 10</u> |       | <u>11 or More</u> |       | <u>Total Population</u> |       |
| No.                                          | Mean  | No.            | Mean  | No.               | Mean  | No.                     | Mean  |
| 158                                          | 85.94 | 254            | 85.08 | 197               | 86.41 | 609                     | 85.73 |

| <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
| <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
| No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 126                                          | 82.62 | 388                       | 86.26 | 95              | 87.72 |

<----- Two-Way Cell Means ----->

| <u>Principal's Admin. Exper. (Years)</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |       |                           |       |                 |       |
|------------------------------------------|----------------------------------------------|-------|---------------------------|-------|-----------------|-------|
|                                          | <u>&lt;35.2</u>                              |       | <u>&gt;35.2; &lt;44.8</u> |       | <u>&gt;44.8</u> |       |
|                                          | No.                                          | Mean  | No.                       | Mean  | No.             | Mean  |
| 5 or less                                | 38                                           | 82.87 | 103                       | 86.60 | 17              | 88.82 |
| 6 to 10                                  | 55                                           | 84.40 | 157                       | 85.32 | 42              | 85.07 |
| 11 or more                               | 33                                           | 79.36 | 128                       | 87.13 | 36              | 90.28 |

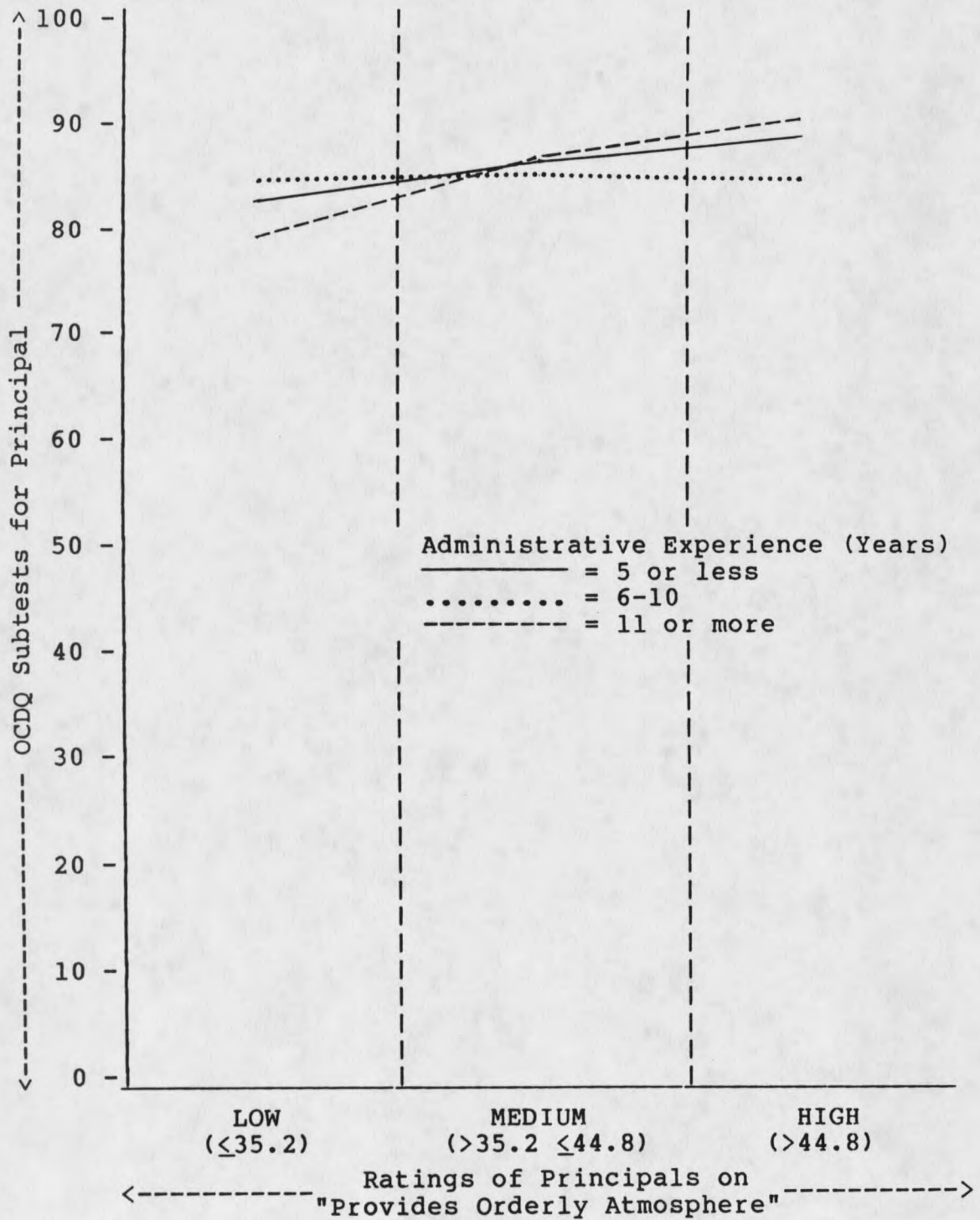


Figure 18. Graphical representation of cell mean values reported in Table 95.

Table 96. Analysis of variance of characteristics of principals' behaviors by school size and "provides orderly atmosphere" ratings.

| Source of Variation              | Sum of Squares | DF  | Mean Square | F     | Sig. of F |
|----------------------------------|----------------|-----|-------------|-------|-----------|
| <u>Main Effects</u>              | 1895.686       | 4   | 473.921     | 4.396 | .002      |
| School Size                      | 192.529        | 2   | 96.264      | 0.893 | .410      |
| Orderly Atmosph.                 | 1307.517       | 2   | 653.758     | 6.065 | .002*     |
| <u>2-Way Interactions</u>        | 935.045        | 4   | 233.761     | 2.168 | .071      |
| School Size/<br>Orderly Atmosph. | 935.045        | 4   | 233.761     | 2.168 | .071      |
| Explained                        | 2830.731       | 8   | 353.841     | 3.282 | .001      |
| Residual                         | 64680.176      | 600 | 107.800     |       |           |
| Total                            | 67510.906      | 608 | 111.038     |       |           |

\*Significant at alpha = .05.

Table 97. Cell means of characteristics of principals' behaviors by school size and "provides orderly atmosphere" ratings.

| <u>School Size</u> |             |                   |             |                    |             | <u>Total</u>      |             |
|--------------------|-------------|-------------------|-------------|--------------------|-------------|-------------------|-------------|
| <u>Under 200</u>   |             | <u>200 to 350</u> |             | <u>351 or More</u> |             | <u>Population</u> |             |
| <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> | <u>No.</u>         | <u>Mean</u> | <u>No.</u>        | <u>Mean</u> |
| 165                | 84.16       | 200               | 86.60       | 244                | 86.08       | 609               | 85.73       |

| <u>"Provides Orderly Atmosphere" Ratings</u> |             |                           |             |                 |             |
|----------------------------------------------|-------------|---------------------------|-------------|-----------------|-------------|
| <u>&lt;35.2</u>                              |             | <u>&gt;35.2; &lt;44.8</u> |             | <u>&gt;44.8</u> |             |
| <u>No.</u>                                   | <u>Mean</u> | <u>No.</u>                | <u>Mean</u> | <u>No.</u>      | <u>Mean</u> |
| 126                                          | 82.62       | 388                       | 86.26       | 95              | 87.72       |

<----- Two-Way Cell Means ----->

| <u>School<br/>Size</u> | <u>"Provides Orderly Atmosphere" Ratings</u> |             |                           |             |                 |             |
|------------------------|----------------------------------------------|-------------|---------------------------|-------------|-----------------|-------------|
|                        | <u>&lt;35.2</u>                              |             | <u>&gt;35.2; &lt;44.8</u> |             | <u>&gt;44.8</u> |             |
|                        | <u>No.</u>                                   | <u>Mean</u> | <u>No.</u>                | <u>Mean</u> | <u>No.</u>      | <u>Mean</u> |
| Under 200              | 62                                           | 80.48       | 89                        | 86.87       | 14              | 83.29       |
| 200 to 350             | 28                                           | 84.07       | 126                       | 86.00       | 46              | 89.80       |
| 351 or more            | 36                                           | 85.17       | 173                       | 86.14       | 35              | 86.74       |

### Summary

Two questionnaires were completed by 716 classroom teachers in fifty Wyoming elementary schools. Building principals in each of the fifty schools completed biographical data sheets. The results of these instruments served as the data source of this study. In Tables 3 through 7 are displayed the biographical data received from building principals. Tables 8 through 97 and Figures 1 through 18 reveal the analyses of variance obtained through computer analysis at Montana State University, Bozeman, Montana.

Data pertaining to each of the eighteen hypotheses were treated separately. Tables were provided to display the analyses of variance data from which the F-scores were computed. Tables were also provided to display differences in cell means. Where F-values for interaction were found to be significant at the .05 level. The null hypotheses were rejected and main effects, though measured, were not reported. In such cases, figures were also provided as a graphical display of cell mean values.

Two-way analyses of variance revealed that when general openness scores were used as the dependent variable, there were significant interactions between the ratings of principals on "supports teachers" and principal's age. Interactions between the ratings of principals on "emphasizes achievement" and principal's age, gender,

total years of teaching and administrative experience were also revealed. Principal's age and total years of administrative experience were found to have interaction with the ratings of principals on "provides orderly atmosphere."

When OCDQ subtest scores for characteristics of faculty behaviors were used as the dependent variable, interactions between the ratings of principals on "supports teachers" and principal's total years of administrative experience and school size were revealed. No significant interactions were found between the ratings of principals on "emphasizes achievement" and the independent variables identified in this study. Principal's total years of teaching experience was revealed as interacting with the ratings of principals on "provides orderly atmosphere."

Two-way analyses of variance revealed that when OCDQ subtest scores for characteristics of principals' behaviors were used as the dependent variable, interactions between the ratings of principals on "supports teachers" and principal's age, gender, and total years of teaching experience existed. Interactions were found between the ratings of principals on "emphasizes achievement" and principal's age and total years of teaching experience. Principal's age, total years of teaching experience, and total years of administrative experience were revealed as

interacting with the ratings of principals on "provides orderly atmosphere."

When OCDQ general openness scores were used as the dependent variable, significant differences in school climate means (column) were found to exist between the ratings of principals on "supports teachers" and principal's gender, total years of teaching and administrative experience, and school size. A significant difference in school climate means (row) was found to exist between school size and the ratings of principals on "supports teachers" as determined by OCDQ general openness scores.

When the ratings of principals on "emphasizes achievement" were analyzed using OCDQ general openness scores as the dependent variable, a significant difference in school climate means (column) was found to exist in school size. A significant difference in school climate means (row) also was found to exist between the ratings of principals on "emphasizes achievement" and school size.

Significant differences in school climate means (column) were found to exist between the ratings of principals on "provides orderly atmosphere" and principal's gender, total years of teaching experience, and school size. Significant differences in school climate means (row) were found to exist between principal's gender, total years of teaching experience, and school size and the



ratings of principals on "provides orderly atmosphere" as determined by OCDQ general openness scores.

No significant differences in school climate means (column) were found to exist between the ratings of principals on "supports teachers" and the five independent variables identified in the study as determined by OCDQ subtest scores for characteristics of faculty behaviors. Significant differences (row) were found to exist between principal's age and total years of teaching experience and the ratings of principals on "supports teachers" as determined by OCDQ subtest scores for characteristics of faculty behaviors.

When the ratings of principals on "emphasizes achievement" were analyzed using OCDQ subtest scores for characteristics of faculty behaviors as the dependent variable, no significant differences in school climate means (column) were revealed. Significant differences in school climate means (row) were found to exist between principal's age and total years of teaching experience and the ratings of principals on "emphasizes achievement" as determined by OCDQ subtest scores for characteristics of faculty behaviors.

No significant differences in school climate means (column) were found to exist between the ratings of principals on "provides orderly atmosphere" and any of the independent variables identified in the study. Significant

differences in school climate means (row) were found to exist between principal's age and total years of teaching experience and the ratings of principals on "provides orderly atmosphere" as determined by OCDQ subtest scores for characteristics of faculty behavior.

When the ratings of principals on "supports teachers" were analyzed using OCDQ subtest scores for characteristics of principals' behaviors, no significant differences in school climate means (column) were revealed. A significant difference (row) was found to exist between principal's total years of administrative experience and school size and the ratings of principals on "supports teachers" as determined by OCDQ subtest scores for characteristics of principals' behaviors.

Significant differences in school climate means (column) were found to exist between the ratings of principals on "emphasizes achievement" and principal's gender, total years of administrative experience and school size. No significant difference (row) was found to exist between the independent variables and the ratings of principals on "emphasizes achievement" as determined by OCDQ subtest scores for characteristics of principals' behaviors.

When the ratings of principals on "provides orderly atmosphere" were analyzed using OCDQ subtest scores for principals' behaviors as the dependent variable,

significant differences in school climate means (column) were found to exist in principal's gender and school size. No significant differences were found to exist in school climate means (row) between the ratings of principals on "provides orderly atmosphere" and principal's age, gender, total years of teaching or administrative experience, or school size.

## CHAPTER 5

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Chapter 5 contains a summary of the study, conclusions and recommendations. The chapter is divided into the following four sections: (1) introduction, (2) summary of the study, (3) conclusions, and (4) recommendations. The summary of the study section is further divided into three areas: (a) the problem, (b) the procedures, and (c) the literature reviewed.

Summary of the StudyThe Problem

The problem of this study was to determine if there was a significant difference between the organizational climate scores of Wyoming elementary schools and how such differences related to the ratings of principals on identified leadership behaviors.

The variables incorporated into the study included the following: (1) gender of each principal, (2) age of each principal, (3) total years of teaching experience of each principal, (4) total years of administrative experience of each principal, and (5) school size.

### The Procedure

This study investigated 18 research hypotheses. Nine hypotheses were used to analyze differences in the mean cell values of principals rated high, medium or low on three identified leadership behaviors and principals' age, gender, total years of teaching and administrative experience, and school size. Nine hypotheses were used to analyze for interaction between ratings of principals on "supports teachers," "emphasizes achievement," and "provides orderly atmosphere" and the biographical variables of principals identified above.

Three separate dependent variables were used in the study. Hypotheses 1 through 6 used general openness scores of the Organizational Climate Description Questionnaire (OCDQ) as the dependent variable. Hypotheses 7 through 12 used the OCDQ subtest scores for characteristics of the faculty as the dependent variables, while subtest scores for characteristics of the principal were used in hypotheses 13 through 18.

The procedure used in determining differences in school climate scores related to the variables stated in the problem statement was designed as an analysis of variance. The biographical variables were analyzed (analysis of variance F-scores) with the separate variables of the ratings of principals on "supports teachers," "emphasizes achievement," and "provides orderly atmosphere."

Data for the study were collected in March 1987, when 716 full-time elementary teachers in 50 schools in Wyoming participated in the study. The instruments used in the data collection are shown in Appendices B, C and F. Appendix F is a copy of the Organizational Climate Description Questionnaire which was used to gather data concerning school climate. Appendix C is the instrument which was used to collect biographical information on building principals. Appendix B was completed by classroom teachers in each of the sample schools and was used to rate principals as high, medium or low in each of three identified leadership behaviors: (1) "supports teachers," (2) "emphasizes achievement," and (3) "provides orderly atmosphere."

Validity and reliability of the Organizational Climate Description Questionnaire were established by Halpin and Croft (1962:55-57). The second instrument, the school checklist, was considered to contain face validity. The checklist contained ten questions on each of the three leadership behaviors mentioned above. The questions were developed by the Council of Basic Education as a means of sharpening inquiry into the quality of schools.

#### Literature Reviewed

A review of literature related to organizational climate revealed that industrial management was the first field to take an interest in the area of organizational

climate. A unification of works in the areas of psychology, sociology and industrial management began what is now called organizational climate. Those works appeared as early as 1938 with the research of Barnard, although the term "organizational climate" was credited to Francis Cornell through his article published in Phi Delta Kappan in 1955.

Argyrus (1958), Forehand and Gilmer (1964), Halpin (1966), and Tagiuri (1968) were some of the individuals who made great efforts to more adequately define organizational climate and attempted to give meaning to the concept. More recently, Hoy and Miskel (1982) described organizational climate as consisting of a set of internal characteristics that distinguish one school from another and influence the behavior of the people in the school. The four conceptualizations of organizational climate as reviewed by Hoy and Miskel (1982) include: (1) the climate of interaction among teachers or between teachers and principals; (2) the climate which portrays schools as lying along a continuum of participative to exploitive-authoritative managerial systems; (3) the conceptualization which views school climate in terms of a continuum of control over students, from humanistic to custodial; and (4) the conceptualization of school climate in terms of development and control processes. This study investigated the organizational climate of Wyoming elementary schools in terms of its being

an interaction among teachers or between teachers and principals.

Although many researchers associated with effective school research (Weber, 1971; Hoover, 1978; Brookover and Lezotte, 1977; and Edmonds, 1979) have emphasized the importance of the school principal in bringing about high levels of student achievement, research incorporating the criterion variables of this study (those of organizational climate and leader behaviors) has been quite recent.

Squires et al. (1983) argued that student success was clearly related to school climate which was, in turn, related to leadership. In their research of effective schools, Squires et al. suggested that in effective schools active leadership created a school climate in which success was expected, academics were emphasized, and the environment was orderly.

Rutherford et al. (1983), Bird and Little (1985), and Andrews et al. (1986) examined the role of the principal from a variety of perspectives. They provide evidence of the influence principals exert on their school's climate and their students' progress. The publication of the National Association of Elementary School Principals (NAESP), Research Roundup, in its November 1986 edition, summarized the importance of the principal as instructional leader when it stated,



The studies demonstrate that a committed, caring principal can make all the difference in the world between a school where students and teachers merely 'put in time' and a thriving and successful institution where principal, teachers and students enthusiastically participate in a common vision of excellence (Ellis, 1986:1).

With some question of generalizability of research findings, Sweeny (1984) recommended that there was an obvious need to continue, even intensify, school effectiveness research. Sweeny's recommendations were to focus future research on the so-called average schools and to clearly define and describe instructional leadership behaviors since in most cases they were stated in vague and general terms. This study investigated three of the most commonly cited leadership behaviors for principals: "supports teachers," "emphasizes achievement," and "provides an orderly atmosphere."

### Conclusions

The list of general questions in Chapter 1 included questions concerning the differences in climate scores between selected Wyoming elementary schools and how such differences were related to ratings of principals on identified leadership behaviors as well as certain predictor variables. This study provided the following answers to those questions:

- (1) There were significant differences between the organizational climate scores of sample schools.

- (2) School size appeared significant, particularly for schools with less than two hundred students. When OCDQ general openness scores were used as the dependent variable, these schools received the lowest scores in school climate regardless of the ratings of the principals on identified leadership behaviors. Such data contradict the general conclusion that smaller and, in many cases, rural schools have climates marked by openness, acceptance and authenticity because of their smaller teacher/student ratios. These data indicate, however, that smaller schools of less than two hundred students are more closed than their larger counterparts. One possible conclusion is the lack of quality and quantity of supervision. The dynamic personal example of a principal may be scheduled too thin in the smaller Wyoming schools to facilitate open climates.
- (3) One of the purposes of the study was to determine if any differences in school climate scores would be reflected as the ratings of principals varied on identified leadership behaviors. The investigator believed that principals who were rated higher by their teachers in "supports teachers," "emphasizes achievement," and "provides orderly atmosphere" would receive higher scores on school climate as determined by the Organizational Climate Description

Questionnaire. Tables 8 through 17 and Figure 1 demonstrate that such differences were identified by the study. When OCDQ general openness scores were used as the dependent variable, significant column differences were found to exist for the independent variables of principal's age, gender, total years of teaching and administrative experience, and school size. Such differences existed regardless of the leadership behavior being measured. In short, principals who were rated higher by their teachers in "supports teachers," "emphasizes achievement," and "provides orderly atmosphere" received consistently higher scores on school climate. Such findings were also present when OCDQ subtest scores for characteristics of principals' behaviors were used as the dependent variable. These data underscore the importance of leadership behaviors in facilitating schools with open climates. In such schools, dynamic leadership, like other healthy organizational dynamics, enhances the probability of institutional policies and changes being successfully implemented. In an open and healthy organizational climate, when a sound new method is introduced, openness and achievement go together. Healthy, open organizational dynamics have a contributing impact because they facilitate the process of the organization.

- (4) Principal's age was found to be significant only when OCDQ subtest scores for characteristics of the faculty were used as the dependent variable. In that instance, principals who were thirty-five years old or younger received the lowest school climate scores regardless of their ratings on leadership behaviors. The results also indicated that principals between the ages of thirty-six and forty-six received the highest openness scores regardless of the leadership behavior under consideration. These data support the research of Donald P. Anderson (1964) that with time principals become more confident, self-secure, cheerful, sociable, and resourceful. The data also reflect, however, a slight decrease in general openness scores for principals over the age of forty-six. This indicates some rigidity as principals' behaviors and procedures become more fixed over time.
- (5) The data indicated that female administrators received higher school climate scores than their male counterparts when general openness scores were used as the dependent variable in leadership behaviors of "supports teachers" and "provides orderly atmosphere." Female administrators also received consistently higher scores than males when OCDQ subtest scores for characteristics of the principal were used as the dependent variable on ratings for "provides orderly

atmosphere." In short, female principals in this study received scores with a high degree of thrust and esprit and low disengagement. This combination suggests a climate in which both the principal and faculty are genuine in their behavior. The principal leads through example by providing the proper blend of structure and direction as well as support and consideration.

- (6) When subtest scores for characteristics of faculty were used as the dependent variable, principals with five years or less of teaching experience outperformed those with more teaching experience in the leadership behaviors of "supports teachers," and "emphasizes achievement." This is an unexpected finding which warrants further research.

#### Recommendations

- (1) Further study should be undertaken to discover how other biographical variables of the school principal may affect school climate scores. Such variables may include: level of education, graduate academic major, present administrative certification status, length of employment contract, salary, perceived economic status of the community which the school/district serves, total number of full and part-time school employees

supervised, and total number of unpaid personnel supervised.

- (2) Further study should be undertaken which will identify specific interventions to improve the organizational climate of schools. Specific research should center upon schools with less than two hundred students.
- (3) School administrators should review and increase supervision of schools with less than two hundred students for the purpose of motivating through personal example. Educational goals should be articulated and communicated both horizontally and vertically. Leadership patterns to include scheduled supervisory visits and evaluation cycles should be clearly communicated and enforced.
- (4) Central school administrators should review the performance of principals who are thirty-five or younger. Studies like this which examine relationships between the characteristics of the principal and the climate of the school often indicate that, in comparison with closed schools, open schools have stronger principals who are more confident, self-secure, cheerful, sociable and resourceful. New principal orientation and supervision should reflect the nurturing of such qualities, specifically as they relate to younger principals.

- (5) Further study should be conducted to discover how principals' gender contributes to the organizational climate of schools. The humanistic orientation of some female administrators may lead to a democratic atmosphere with open channels of two-way communication between pupils and teachers and increase student-determination and general school openness.
- (6) Further study should be conducted to discover how the total years of teaching experience of principals may contribute to the organizational climate of schools. Contrary to what may have been expected, this research revealed that principals with five years or less of teaching experience outperformed those with more teaching experience in the leadership behaviors of "supports teachers" and "emphasizes achievement." Such data would have implications for state certification agencies, administrative training sites and the screening/hiring processes of public schools.
- (7) Further study should be conducted to discover how the ratings of principals on other identified leadership behaviors may influence school climate. Such behaviors may include: coordinates instructional programs, frequently evaluates pupil progress, and sets instructional strategies.
- (8) School administrators and staff (both certified and classified) should develop a dialogue concerning

school climate and how it affects school personnel and operations. All school staff should constantly attempt to improve school climate. Such improvements may affect student/staff self-esteem and student academic achievement.

- (9) Measurements of school climate should be introduced into current school evaluation practices. Such instruments would allow the development of baseline data regarding personal perceptions of staff, and could provide direction for district goals in the areas of student and staff self-esteem as well as staff-administration relations.
- (10) School administrators should become more aware of the concept of organizational climate and the principals' behaviors identified in effective school research which may contribute to the organizational climate of schools.



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APPENDICES

APPENDIX A:

LISTING OF THE 159 ELEMENTARY  
SCHOOLS OF THE POPULATION



Table 98. Listing of the 159 Wyoming elementary schools of the population.

| Rank                    | School Name/Address                                              | Number of Classroom Teachers |
|-------------------------|------------------------------------------------------------------|------------------------------|
| <u>Albany County:</u>   |                                                                  |                              |
| 1                       | Beitel (K-6), 17th & Sheridan,<br>Laramie, WY 82070              | 20                           |
| 2                       | Linford (K-6), 120 S. Jackson,<br>Laramie, WY 82070              | 30                           |
| 3                       | Nellie Iles (K-6), 518 Ord,<br>Laramie, WY 82070                 | 14                           |
| 4                       | Slade (K-6), 11th and Sully,<br>Laramie, WY 82070                | 22                           |
| 5                       | Thayer (K-6), 801 S. 24th Street,<br>Laramie, WY 82070           | 12                           |
| <u>Big Horn County:</u> |                                                                  |                              |
| 6                       | Cowley (K-5), P.O. Box 38,<br>Cowley, WY 82420                   | 7                            |
| 7                       | Lovell (K-5), 520 Shoshone,<br>Lovell, WY 82431                  | 24                           |
| 8                       | Greybull (K-5), 413 - 3rd Ave. N.<br>Greybull, WY 82426          | 20                           |
| 9                       | Basin (K-6), 101 South 12<br>Basin, WY 82410                     | 16                           |
| <u>Campbell County:</u> |                                                                  |                              |
| 10                      | Conestoga (K-6), 4901 Sleepy Hollow<br>Blvd., Gillette, WY 82716 | 32                           |
| 11                      | Cottonwood (K-6), Box C,<br>Wright, WY 82732                     | 28                           |
| 12                      | Hillcrest (K-6), 800 Butler-Spaeth<br>Road, Gillette, WY 82716   | 31                           |

Table 98--continued.

| Rank | School Name/Address                                                  | Number of<br>Classroom<br>Teachers |
|------|----------------------------------------------------------------------|------------------------------------|
| 13   | Lakeview (K-6), 410 Lakeside Drive,<br>Gillette, WY 82716            | 25                                 |
| 14   | Meadowlark (K-6), 817 East 7th,<br>Gillette, WY 82716                | 20                                 |
| 15   | Paintbrush (K-6), 1001 W. Lakeway<br>Road, Gillette, WY 82716        | 31                                 |
| 16   | Rawhide (K-6), Prospector/Parkway<br>Rawhide Rd., Gillette, WY 82716 | 27                                 |
| 17   | Stocktrail (4-6), 800 Stocktrail<br>Ave., Gillette, WY 82716         | 17                                 |
| 18   | Sunflower (K-6), 2500 S. Dogwood<br>Ave., Gillette, WY 82716         | 30                                 |
| 19   | Wagonwheel (K-6), 800 Hemlock,<br>Gillette, WY 82716                 | 30                                 |
| 20   | Westwood (K-3), 601 Rohan,<br>Gillette, WY 82716                     | 22                                 |

Carbon County:

|    |                                                                   |    |
|----|-------------------------------------------------------------------|----|
| 21 | Highland Hills (K-5), Darnley and<br>Inverness, Rawlins, WY 82301 | 10 |
| 22 | Mountain View (K-5), 11th and<br>Birch, Rawlins, WY 82301         | 13 |
| 23 | Pershing (K-5), Davis and Pershing,<br>Rawlins, WY 82301          | 11 |
| 24 | Sunnyside (K-5), 600 Mahoney,<br>Rawlins, WY 82301                | 13 |
| 25 | Hanna (K-5), P.O. Box 1000,<br>Hanna, WY 82327                    | 19 |
| 26 | Saratoga (K-5), P.O. Box 1710,<br>Saratoga, WY 82331              | 20 |

Table 98--continued.

| Rank                    | School Name/Address                                                     | Number of<br>Classroom<br>Teachers |
|-------------------------|-------------------------------------------------------------------------|------------------------------------|
| <u>Converse County:</u> |                                                                         |                                    |
| 27                      | East Douglas (1-5), East Hamilton,<br>Box 1028, Douglas, WY 82633       | 24                                 |
| 28                      | South (K-3), 7th and Hamilton,<br>Box 1028, Douglas, WY 82633           | 16                                 |
| 29                      | West Douglas (1-5), Box 1028,<br>Douglas, WY 82633                      | 27                                 |
| 30                      | Grant (K-5), 412 S. 4th, Box 1240,<br>Glenrock, WY 82637                | 15                                 |
| 31                      | Oregon Trail (K-5), 125 Sublette<br>Trail, Box 1300, Glenrock, WY 82637 | 15                                 |
| <u>Crook County:</u>    |                                                                         |                                    |
| 32                      | Moorcroft (K-6), 101 S. Belle Fourche,<br>Moorcroft, WY 82721           | 23                                 |
| 33                      | Sundance (K-6), 700 Park,<br>Sundance, WY 82729                         | 17                                 |
| <u>Freemont County:</u> |                                                                         |                                    |
| 34                      | Northside (K-6), 6th and Washington,<br>Lander, WY 82520                | 21                                 |
| 35                      | Southside (K-6), 6th and Popo Agie,<br>Lander, WY 82520                 | 28                                 |
| 36                      | Westside (K-6), 350 Smith Street,<br>Lander, WY 82520                   | 22                                 |
| 37                      | Dubois (K-6), Box 188<br>Dubois, WY 82513                               | 16                                 |
| 38                      | Jeffrey City (K-6), P.O. Box 130,<br>Jeffrey City, WY 82310             | 10                                 |
| 39                      | WY Indian Elem. (K-6), Box 340,<br>Lander Route, Ethete, WY 82520       | 22                                 |

Table 98--continued.

| Rank                       | School Name/Address                                           | Number of<br>Classroom<br>Teachers |
|----------------------------|---------------------------------------------------------------|------------------------------------|
| 40                         | Shoshone (K-6), Box 327,<br>Shoshone, WY 82649                | 16                                 |
| 41                         | Ashgrove (K-5), 510 North 1st,<br>Riverton, WY 82501          | 19                                 |
| 42                         | Jackson (K-5), 720 W. Jackson Ave.,<br>Riverton, WY 82501     | 16                                 |
| 43                         | Jefferson (K-5), 313 E. Jefferson<br>Ave., Riverton, WY 82501 | 24                                 |
| 44                         | Lincoln (K-5), 1304 E. Lincoln Ave.,<br>Riverton, WY 82501    | 24                                 |
| <u>Goshen County:</u>      |                                                               |                                    |
| 45                         | Southeast (K-6),<br>Yoder, WY 82244                           | 7                                  |
| 46                         | Lincoln (K-3), 436 East 22nd,<br>Torrington, WY 82240         | 31                                 |
| 47                         | Lingle-Fort Laramie (K-5),<br>Lingle, WY 82223                | 13                                 |
| 48                         | Pioneer (4-5), 208 East 22nd,<br>Torrington, WY 82240         | 17                                 |
| <u>Hot Springs County:</u> |                                                               |                                    |
| 49                         | Ralph Witters (K-4), 215 Springview,<br>Thermopolis, WY 82443 | 22                                 |
| <u>Johnson County:</u>     |                                                               |                                    |
| 50                         | Kaycee (K-6),<br>Kaycee, WY 82639                             | 9                                  |
| 51                         | Meadowlark (K-5), 550 S. Burritt,<br>Buffalo, WY 82834        | 24                                 |

Table 98--continued.

| Rank                   | School Name/Address                                             | Number of<br>Classroom<br>Teachers |
|------------------------|-----------------------------------------------------------------|------------------------------------|
| <u>Laramie County:</u> |                                                                 |                                    |
| 52                     | Alta Vista (K-6), 1620 Logan Ave.,<br>Cheyenne, WY 82001        | 7                                  |
| 53                     | Anderson (K-6), 2204 Plain View Rd.,<br>Cheyenne, WY 82009      | 20                                 |
| 54                     | Arp (K-6), 1216 Reiner Place,<br>Cheyenne, WY 82007             | 13                                 |
| 55                     | Baggs (K-6), 3705 Cheyenne St.,<br>Cheyenne, WY 82001           | 13                                 |
| 56                     | Bain (K-6), 903 Adams Ave.,<br>Cheyenne, WY 82001               | 18                                 |
| 57                     | Buffalo Ridge (K-6), 5331 Pineridge<br>Ave., Cheyenne, WY 82009 | 13                                 |
| 58                     | Cole (K-6), 820 O'Neil Ave.,<br>Cheyenne, WY 82007              | 13                                 |
| 59                     | Corlett (K-4), 600 West 22nd St.,<br>Cheyenne, WY 82001         | 10                                 |
| 60                     | Davis (K-6), 6309 Yellowstone Rd.,<br>Cheyenne, WY 82009        | 12                                 |
| 61                     | Deming (K-4), 715 West 5th Ave.,<br>Cheyenne, WY 82001          | 9                                  |
| 62                     | Dildine (K-6), 4312 Van Buren Ave.,<br>Cheyenne, WY 82001       | 19                                 |
| 63                     | Eastridge (K-3), 3323 Concord Rd.,<br>Cheyenne, WY 82001        | 7                                  |
| 64                     | Fairview (4-6), 2801 East 10th St.,<br>Cheyenne, WY 82001       | 8                                  |
| 65                     | Goins (K-6), 201 S. Cribbon Ave.,<br>Cheyenne, WY 82007         | 18                                 |

Table 98--continued.

| Rank | School Name/Address                                            | Number of<br>Classroom<br>Teachers |
|------|----------------------------------------------------------------|------------------------------------|
| 66   | Hebard (K-6), 413 Seymour Ave.,<br>Cheyenne, WY 82007          | 12                                 |
| 67   | Henderson (K & 4-6), 2820 Henderson<br>Dr., Cheyenne, WY 82001 | 7                                  |
| 68   | Hobbs (K-6), 5710 Syracuse Rd.,<br>Cheyenne, WY 82009          | 20                                 |
| 69   | Jessup (K-6), 6113 Evers Blvd.,<br>Cheyenne, WY 82009          | 13                                 |
| 70   | Lehart (K-6), 807 Coolidge St.,<br>Cheyenne, WY 82001          | 10                                 |
| 71   | Pioneer Park (K-6), 1407 Cosgriff<br>Court, Cheyenne, WY 82001 | 12                                 |
| 72   | Rossman (K-6), 916 W. College Dr.,<br>Cheyenne, WY 82007       | 10                                 |
| 73   | Hillsdale (K-6),<br>Hillsdale, WY 82060                        | 9                                  |
| 74   | Pine Bluffs (K-6), 5th and Elm,<br>Pine Bluffs, WY 82082       | 15                                 |

Lincoln County:

|    |                                                                 |    |
|----|-----------------------------------------------------------------|----|
| 75 | Canyon (4-6), 1401 Antelope<br>Kemmerer, WY 83101               | 20 |
| 76 | Kemmerer (K-3), 1401 Lincoln<br>Heights Dr., Kemmerer, WY 83101 | 26 |
| 77 | Afton (K-6),<br>Afton, WY 83110                                 | 20 |
| 78 | Cokeville (K-6),<br>Cokeville, WY 83114                         | 7  |
| 79 | Holdaway (K-6),<br>Thayne, WY 83127                             | 7  |

Table 98--continued.

| Rank                   | School Name/Address                                        | Number of<br>Classroom<br>Teachers |
|------------------------|------------------------------------------------------------|------------------------------------|
| 80                     | Metcalf (K-6),<br>Etna, WY 83118                           | 7                                  |
| 81                     | Osmond (K-6),<br>Afton, WY 83110                           | 8                                  |
| <u>Natrona County:</u> |                                                            |                                    |
| 82                     | Bar Nunn (K-6), 100 Trisha Dr.,<br>Casper, WY 82601        | 16                                 |
| 83                     | Crest Hill (K-6), 4445 S. Poplar,<br>Casper, WY 82601      | 24                                 |
| 84                     | Evansville (K-6), 435 Albany,<br>Evansville, WY 82636      | 25                                 |
| 85                     | Fairdale (K-6), 1400 Fairdale Ave.,<br>Casper, WY 82601    | 16                                 |
| 86                     | Garfield (K-6), 1927 S. Walnut,<br>Casper, WY 82601        | 8                                  |
| 87                     | Grant (K-6), 1536 Oakcrest Ave.,<br>Casper, WY 82601       | 12                                 |
| 88                     | Jefferson (K-6), 522 S. Jefferson,<br>Casper, WY 82601     | 13                                 |
| 89                     | Manor Heights (K-6), 3201 E. 15th<br>St., Casper, WY 82609 | 19                                 |
| 90                     | McKinley (K-6), 1217 West 14th,<br>Casper, WY 82604        | 9                                  |
| 91                     | Mills (K-6), 2nd and Wasatch,<br>Mills, WY 82644           | 19                                 |
| 92                     | Mountain View (K-6), 400 N. Third,<br>Casper, WY 82604     | 21                                 |
| 93                     | North Casper (K-6), 1014 Glenarm,<br>Casper, WY 82601      | 17                                 |

Table 98--continued.

| Rank | School Name/Address                                                  | Number of<br>Classroom<br>Teachers |
|------|----------------------------------------------------------------------|------------------------------------|
| 94   | Oregon Trail (K-6), 6332 Buckboard Road, Casper, WY 82604            | 16                                 |
| 95   | Paradise Valley (K-6), Magnolia and River Bend Rd., Casper, WY 82604 | 30                                 |
| 96   | Park (K-6), 823 South David, Casper, WY 82601                        | 13                                 |
| 97   | Pineview (K-6), 639 Payne Ave., Casper, WY 82609                     | 16                                 |
| 98   | Poison Spider (K-6), 6150 Raderville Route, Casper, WY 82604         | 10                                 |
| 99   | Sagewood (K-6), 2451 Shattuck St., Casper, WY 82601                  | 15                                 |
| 100  | Southridge (K-6), 1600 West 29th, Casper, WY 82604                   | 16                                 |
| 101  | University Park (K-6), 600 N. Huber Drive, Casper, WY 82609          | 8                                  |
| 102  | Verda James (K-6), 701 Carriage Ln., Casper, WY 82609                | 23                                 |
| 103  | Westwood (K-6), 2300 Bellaire Dr., Casper, WY 82609                  | 17                                 |
| 104  | Willard (K-6), 129 North Elk, Casper, WY 82601                       | 15                                 |

Niobrara County:

|     |                                                            |    |
|-----|------------------------------------------------------------|----|
| 105 | Lusk (K-5), 431 South Maple, P.O. Box 1239, Lusk, WY 82225 | 19 |
|-----|------------------------------------------------------------|----|

Park County:

|     |                                                           |    |
|-----|-----------------------------------------------------------|----|
| 106 | Parkside (K-5), 1st and Douglas Streets, Powell, WY 82435 | 16 |
| 107 | Southside (K-5), 532 E. Madison, Powell, WY 82435         | 13 |



Table 98--continued.

| Rank                    | School Name/Address                                                | Number of<br>Classroom<br>Teachers |
|-------------------------|--------------------------------------------------------------------|------------------------------------|
| 108                     | Westside (K-5), 956 Avenue K,<br>Powell, WY 82435                  | 13                                 |
| 109                     | Eastside (K-6), 1601 Bleistein<br>Ave., Cody, WY 82414             | 18                                 |
| 110                     | Glen Livingston (K-6), 2001 - 12th<br>Street, Cody, WY 82414       | 25                                 |
| 111                     | Sunset (K-6), 1520 - 21st St.,<br>Cody, WY 82414                   | 17                                 |
| 112                     | Meeteetse (K-6), 2107 Idaho,<br>Meeteetse, WY 82433                | 9                                  |
| <u>Platte County:</u>   |                                                                    |                                    |
| 113                     | Libbey (K-3), 13th at Oak,<br>Wheatland, WY 82201                  | 26                                 |
| 114                     | West (K and 4-6), 201 - 20th,<br>Wheatland, WY 82201               | 25                                 |
| 115                     | Guernsey-Sunrise (K-6), 555 So.<br>Wyoming St., Guernsey, WY 82214 | 20                                 |
| <u>Sheridan County:</u> |                                                                    |                                    |
| 116                     | Big Horn (K-5),<br>Big Horn, WY 82833                              | 8                                  |
| 117                     | Tongue River (K-4), Box 66,<br>Ranchester, WY 82839                | 17                                 |
| 118                     | Coffeen (K-6), 1053 S. Sheridan<br>Ave., Sheridan, WY 82801        | 23                                 |
| 119                     | Highland Park (K-6), 1301 Avon,<br>Sheridan, WY 82801              | 26                                 |
| 120                     | Linden (K-6), 430 Whitney,<br>Sheridan, WY 82801                   | 8                                  |

Table 98--continued.

| Rank                      | School Name/Address                                                | Number of<br>Classroom<br>Teachers |
|---------------------------|--------------------------------------------------------------------|------------------------------------|
| 121                       | Meadowlark (K-6), 1410 DeSmet Ave.,<br>Sheridan, WY 82801          | 25                                 |
| 122                       | Taylor (K-6), 1020 North Main,<br>Sheridan, WY 82801               | 15                                 |
| 123                       | Woodland Park (K-6), 5135 Coffeen<br>Ave., Sheridan, WY 82801      | 15                                 |
| <u>Sublette County:</u>   |                                                                    |                                    |
| 124                       | Pinedale (K-5), 127 S. Tyler Ave.,<br>Box 549, Pinedale, WY 82941  | 22                                 |
| 125                       | Big Piney (K-5), 511 Nichols St. S.,<br>Big Piney, WY 83113        | 16                                 |
| 126                       | LaBarge (K-5),<br>LaBarge, WY 83123                                | 8                                  |
| <u>Sweetwater County:</u> |                                                                    |                                    |
| 127                       | Desert View (K-6), Desert View<br>Addition, Rock Springs, WY 82901 | 12                                 |
| 128                       | Lincoln (K-6), 915 Edgar<br>Rock Springs, WY 82901                 | 15                                 |
| 129                       | Lowell (K-6), 1302 Lowell Ave.,<br>Rock Springs, WY 82901          | 8                                  |
| 130                       | Northpark (K-6), Signal Drive,<br>Rock Springs, WY 82901           | 16                                 |
| 131                       | Overland (K-6), Foothill Blvd.,<br>Rock Springs, WY 82901          | 19                                 |
| 132                       | Reliance (K-6), P.O. Box 1089,<br>Rock Springs, WY 82901           | 8                                  |
| 133                       | Roosevelt (K-6), 440 Dewar Dr.,<br>Rock Springs, WY 82901          | 8                                  |

Table 98--continued.

| Rank | School Name/Address                                          | Number of<br>Classroom<br>Teachers |
|------|--------------------------------------------------------------|------------------------------------|
| 134  | Superior (K-6), 61 Summit,<br>Superior, WY 82945             | 8                                  |
| 135  | Walnut (K-6), 1115 Walnut St.,<br>Rock Springs, WY 82901     | 14                                 |
| 136  | Washington (K-6), 625 Ahsay Ave.,<br>Rock Springs, WY 82901  | 15                                 |
| 137  | Westridge (K-6), 3501 Dewar Dr.,<br>Rock Springs, WY 82901   | 21                                 |
| 138  | Yellowstone (K-6), 725 C Street,<br>Rock Springs, WY 82901   | 19                                 |
| 139  | Harrison (K-5), 1825 Alabama Dr.,<br>Green River, WY 82935   | 23                                 |
| 140  | Jackson (K-5), 2500 West Teton,<br>Green River, WY 82935     | 21                                 |
| 141  | Roosevelt (K-5), 550 Uinta Dr.,<br>Green River, WY 82935     | 18                                 |
| 142  | Truman (K-5), 1055 West Teton,<br>Green River, WY 82935      | 27                                 |
| 143  | Washington (K-5), 750 W. 5th North,<br>Green River, WY 82935 | 20                                 |
| 144  | Wilson (K-5), 351 Monroe,<br>Green River, WY 82935           | 17                                 |

Teton County:

|     |                                                                        |    |
|-----|------------------------------------------------------------------------|----|
| 145 | Jackson Hole Intermediate (5-6),<br>220 S. Glenwood, Jackson, WY 83001 | 13 |
| 146 | Jackson (K-4), 155 North Jean,<br>Jackson, WY 83001                    | 23 |
| 147 | Wilson (K-5),<br>Wilson, WY 83014                                      | 9  |

Table 98--continued.

| Rank                    | School Name/Address                                            | Number of<br>Classroom<br>Teachers |
|-------------------------|----------------------------------------------------------------|------------------------------------|
| <u>Uinta County:</u>    |                                                                |                                    |
| 148                     | Aspen (K-5), 225 Broken Circle<br>Evanston, WY 82930           | 25                                 |
| 149                     | Clark (K-5), 600 - 13th St.,<br>Evanston, WY 82930             | 16                                 |
| 150                     | North Evanston (K-5), 500 Cedar<br>Street, Evanston, WY 82930  | 26                                 |
| 151                     | Uinta Meadows (K-5), 330 Cheyenne<br>Drive, Evanston, WY 82930 | 27                                 |
| 152                     | Mountain View (K-5),<br>Mountain View, WY 82939                | 23                                 |
| 153                     | Lyman (K and 5-6), Box 1090,<br>Lyman, WY 82937                | 15                                 |
| 154                     | Urie (K-4), Box 1090,<br>Lyman, WY 82937                       | 19                                 |
| <u>Washakie County:</u> |                                                                |                                    |
| 155                     | East Side (K-5), 203 North 15th,<br>Worland, WY 82401          | 17                                 |
| 156                     | South Side (K-5), 1229 Howell,<br>Worland, WY 82401            | 14                                 |
| 157                     | West Side (K-5), 810 South 6th,<br>Worland, WY 82401           | 17                                 |
| <u>Weston County:</u>   |                                                                |                                    |
| 158                     | Gertrude Burns (K-6), 627 Pine,<br>Newcastle, WY 82701         | 39                                 |
| 159                     | Lloyd W. Nelson (K-6),<br>Upton, WY 82730                      | 19                                 |

APPENDIX B:  
SCHOOL CHECKLIST

## SCHOOL CHECKLIST

Please read each statement carefully. Then indicate the extent to which you agree or disagree by circling:

**SA**, if you **STRONGLY AGREE** with the statement;

**A**, if you **AGREE** with the statement;

**U**, if you are **UNDECIDED** about the extent of your agreement with the statement;

**D**, if you **DISAGREE** with the statement; or

**SD**, if you **STRONGLY DISAGREE** with the statement.

Work at a fairly high speed. Do not worry over individual items. It is your first impression, the immediate "perception," about each statement that is desired.

School: \_\_\_\_\_

- |    |   |   |   |    |    |                                                                                                                     |
|----|---|---|---|----|----|---------------------------------------------------------------------------------------------------------------------|
| SA | A | U | D | SD | 1. | My school has a clear, well-written, concise statement of instructional goals.                                      |
| SA | A | U | D | SD | 2. | My school's leaders have the freedom and authority needed to carry out programs that will achieve the stated goals. |
| SA | A | U | D | SD | 3. | My principal is decisive and firm.                                                                                  |
| SA | A | U | D | SD | 4. | My principal confers regularly with senior teachers and administrators.                                             |
| SA | A | U | D | SD | 5. | My principal seeks ideas and suggestions from the rest of the staff.                                                |
| SA | A | U | D | SD | 6. | My principal fairly enforces rules and decisions for everyone.                                                      |
| SA | A | U | D | SD | 7. | My principal effectively allocates resources according to stated priorities.                                        |

- |    |   |   |   |    |     |                                                                                                                                                    |
|----|---|---|---|----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|
| SA | A | U | D | SD | 8.  | Much of my principal's time is devoted to supervising instruction, visiting classes, and responding to such visits.                                |
| SA | A | U | D | SD | 9.  | My principal holds high expectations of academic achievement for the staff and students.                                                           |
| SA | A | U | D | SD | 10. | My principal and other senior staff members are well-grounded in the basic subjects.                                                               |
| SA | A | U | D | SD | 11. | Our school publishes statements of expectations and standards for the conduct of staff and students.                                               |
| SA | A | U | D | SD | 12. | Staff members have consistent disciplinary values and practices throughout the school, as opposed to having different standards in each classroom. |
| SA | A | U | D | SD | 13. | Our students are praised for good performance.                                                                                                     |
| SA | A | U | D | SD | 14. | Our students believe that staff members genuinely care about their well-being.                                                                     |
| SA | A | U | D | SD | 15. | The tone of the staff is business-like and professional, yet interested in the students.                                                           |
| SA | A | U | D | SD | 16. | Our staff members spot disorders early and respond quickly and firmly.                                                                             |
| SA | A | U | D | SD | 17. | Reprimands are delivered quietly, without disrupting class.                                                                                        |
| SA | A | U | D | SD | 18. | Our parents are notified of discipline problems with their children.                                                                               |
| SA | A | U | D | SD | 19. | Our school keeps useful records of delinquency, disruption, vandalism, tardiness, absences, and other kinds of anti-school behavior.               |
| SA | A | U | D | SD | 20. | Our school is clean and well maintained; needed repairs are made promptly.                                                                         |

- |    |   |   |   |    |     |                                                                                                                            |
|----|---|---|---|----|-----|----------------------------------------------------------------------------------------------------------------------------|
| SA | A | U | D | SD | 21. | Academic priorities are clearly understood by our staff, students, and parents.                                            |
| SA | A | U | D | SD | 22. | Homework is regularly assigned and checked.                                                                                |
| SA | A | U | D | SD | 23. | Academic problems are diagnosed early and dealt with promptly.                                                             |
| SA | A | U | D | SD | 24. | Student mastery of basic skills and knowledge is stressed over teaching methods.                                           |
| SA | A | U | D | SD | 25. | Our standards of promotion and graduation are understood by all.                                                           |
| SA | A | U | D | SD | 26. | Promotion is based on scholastic achievement rather than time spent at a grade level.                                      |
| SA | A | U | D | SD | 27. | Our curriculum is flexible enough for students to achieve common objectives through differing means or at different rates. |
| SA | A | U | D | SD | 28. | Curricular and classroom distractions from academic achievement are recognized and minimized.                              |
| SA | A | U | D | SD | 29. | All courses require students to write.                                                                                     |
| SA | A | U | D | SD | 30. | Our school gives public recognition to the academic accomplishments of students and staff members.                         |



APPENDIX C:

PRINCIPALS' BIOGRAPHICAL DATA SHEET

## PRINCIPALS' BIOGRAPHICAL DATA SHEET

General Information

(1) Please indicate your gender:

- (a) male ☐
- (b) female ☐

(2) Please indicate your age group:

- (a) 35 or younger ☐
- (b) 36-46 ☐
- (c) 47 or older ☐

(3) Please indicate your total years of teaching experience:

- (a) 5 or less ☐
- (b) 6-10 ☐
- (c) 11 or more ☐

(4) Please indicate your total years of administrative experience (include this year as one):

- (a) 5 or less ☐
- (b) 6-10 ☐
- (c) 11 or more ☐

(5) Please indicate the number of students in your school:

- (a) under 200 ☐
- (b) 200-350 ☐
- (c) 351 or more ☐

SCHOOL: \_\_\_\_\_

APPENDIX D:

LETTER OF ENDORSEMENT FROM WYOMING  
ASSOCIATION OF ELEMENTARY  
SCHOOL PRINCIPALS



Wyoming Association of  
**Elementary School Principals**

Affiliated with National Association of Elementary School Principals

November 4, 1986

Mr. Ed Wright, Principal  
 Meadowlark School  
 816 E. 7th Street  
 Gillette, Wy. 82716

Dear Mr. Wright,

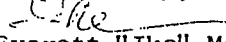
I received your letter indicating your desire to sample appropriate school districts to determine if there is a significant difference between the organizational climate scores of Wyoming public schools and how much such differences relate to the principals' role on various leadership behaviors.

It is my opinion that such a study would be a valuable addition to other literature in determining the effectiveness and climate of a school as a result of the principal's behavior and leadership in various schools in Wyoming.

Literature has repeatedly acknowledged that the most single important factor of a school's success and effectiveness starts with the principal's leadership but to further identify those leadership qualities should be a benefit, not only to practicing principals but also to those in the position of hiring and evaluating school principals.

I wish you good luck and look forward to receiving a copy of the results of your study.

Respectfully,

  
 Everett "Ike" McKay  
 Executive Director WAESP  
 1932 Grand Ave.  
 Laramie, Wy. 82070

APPENDIX E:

SCHOOL DISTRICT RESPONSE CHECKLIST

## SCHOOL DISTRICT RESPONSE CHECKLIST

Note: This study does not require your entire district to participate. I will be happy to work with any individual schools which you select, or who would like to volunteer.

Please indicate applicable response(s).

- ☐ Superintendent will permit this study to be conducted in the district. Permission is granted for Ed Wright to conduct the proposed study.
- ☐ Superintendent wishes to be contacted by phone at \_\_\_\_\_ (number) before making a decision. The best time to call is \_\_\_\_\_.
- ☐ Superintendent will not permit this study to be conducted in the district under any circumstances.
- ☐ Superintendent evaluates the elementary principals in the district.
- ☐ The district employs a supervisor of elementary principals. His/her name is \_\_\_\_\_.
- ☐ Superintendent will/will not ask supervisor and principals to participate in this study.
- ☐ Superintendent will/will not give permission for Ed Wright to contact individual schools within the district for permission to conduct the proposed study.
- ☐ Superintendent wishes to receive a copy of the study's results.

COMMENTS:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
(Date)

APPENDIX F:

ORGANIZATIONAL CLIMATE DESCRIPTION  
QUESTIONNAIRE

## ORGANIZATIONAL CLIMATE DESCRIPTION QUESTIONNAIRE

Andrew W. Halpin and Don B. Croft

Educational Research Services  
2237 Durango Court  
Las Cruces, New Mexico 88001

The items in this questionnaire describe typical behaviors or conditions that occur within a school organization. Please indicate to what extent each of these descriptions characterizes your school. Please do not evaluate the questions in terms of "good" or "bad" behavior, but read each item carefully and respond in terms of how well the statement describes your school. The descriptive scale on which to rate the items is shown below. The purpose of this questionnaire is to secure a description of the different ways in which teachers behave and of the various conditions under which they must work. After you have answered the questionnaire, we will examine the behaviors or conditions that have been described as typical by the majority of the teachers in your school, and we will construct from this description a portrait of the organizational climate of your school.

SCHOOL: \_\_\_\_\_

DESCRIPTIVE SCALE: 1 = rarely occurs  
2 = sometimes occurs  
3 = often occurs  
4 = very frequently occurs

- |   |   |   |   |     |                                                                              |
|---|---|---|---|-----|------------------------------------------------------------------------------|
| 1 | 2 | 3 | 4 | (1) | Teachers' closest friends are other faculty at this school.                  |
| 1 | 2 | 3 | 4 | (2) | The mannerisms of teachers at this school are annoying.                      |
| 1 | 2 | 3 | 4 | (3) | Teachers spend time after school with students who have individual problems. |
| 1 | 2 | 3 | 4 | (4) | Instructions for the operation of teaching aids are available.               |
| 1 | 2 | 3 | 4 | (5) | Teachers invite other faculty to visit them at home.                         |



- |   |   |   |   |      |                                                                             |
|---|---|---|---|------|-----------------------------------------------------------------------------|
| 1 | 2 | 3 | 4 | (6)  | There is a minority group of teachers who always oppose the majority.       |
| 1 | 2 | 3 | 4 | (7)  | Extra books are available for classroom use.                                |
| 1 | 2 | 3 | 4 | (8)  | Sufficient time is given to prepare administrative reports.                 |
| 1 | 2 | 3 | 4 | (9)  | Teachers know the family background of other faculty members.               |
| 1 | 2 | 3 | 4 | (10) | Teachers exert group pressure on non-conforming faculty members.            |
| 1 | 2 | 3 | 4 | (11) | In faculty meetings there is a feeling of "let's get things done."          |
| 1 | 2 | 3 | 4 | (12) | Administrative paperwork is burdensome at this school.                      |
| 1 | 2 | 3 | 4 | (13) | Teachers talk about their personal life to other faculty members.           |
| 1 | 2 | 3 | 4 | (14) | Teachers seek special favors from the principal.                            |
| 1 | 2 | 3 | 4 | (15) | School supplies are readily available for use in classwork.                 |
| 1 | 2 | 3 | 4 | (16) | Student progress reports require too much work.                             |
| 1 | 2 | 3 | 4 | (17) | Teachers have fun socializing together during school time.                  |
| 1 | 2 | 3 | 4 | (18) | Teachers interrupt other faculty members who are talking in staff meetings. |
| 1 | 2 | 3 | 4 | (19) | Most of the teachers here accept the faults of their colleagues.            |
| 1 | 2 | 3 | 4 | (20) | Teachers have too many committee requirements.                              |
| 1 | 2 | 3 | 4 | (21) | There is considerable laughter when teachers gather informally.             |
| 1 | 2 | 3 | 4 | (22) | Teachers ask nonsensical questions in faculty meetings.                     |

- |   |   |   |   |      |                                                                        |
|---|---|---|---|------|------------------------------------------------------------------------|
| 1 | 2 | 3 | 4 | (23) | Custodial service is available when needed.                            |
| 1 | 2 | 3 | 4 | (24) | Routine duties interfere with the job of teaching.                     |
| 1 | 2 | 3 | 4 | (25) | Teachers prepare administrative reports by themselves.                 |
| 1 | 2 | 3 | 4 | (26) | Teachers ramble when they talk in faculty meetings.                    |
| 1 | 2 | 3 | 4 | (27) | Teachers at this school show much school spirit.                       |
| 1 | 2 | 3 | 4 | (28) | The principal goes out of his way to help teachers.                    |
| 1 | 2 | 3 | 4 | (29) | The principal helps teachers solve personal problems.                  |
| 1 | 2 | 3 | 4 | (30) | Teachers at this school stay by themselves.                            |
| 1 | 2 | 3 | 4 | (31) | The teachers accomplish their work with great vim, vigor and pleasure. |
| 1 | 2 | 3 | 4 | (32) | The principal sets an example by working hard himself.                 |
| 1 | 2 | 3 | 4 | (33) | The principal does personal favors for the teachers.                   |
| 1 | 2 | 3 | 4 | (34) | Teachers eat lunch by themselves in their own classrooms.              |
| 1 | 2 | 3 | 4 | (35) | The morale of teachers is high.                                        |
| 1 | 2 | 3 | 4 | (36) | The principal uses constructive criticism.                             |
| 1 | 2 | 3 | 4 | (37) | The principal stays after school to help teachers finish their work.   |
| 1 | 2 | 3 | 4 | (38) | Teachers socialize together in small select groups.                    |
| 1 | 2 | 3 | 4 | (39) | The principal makes all class-scheduling decisions.                    |

- |   |   |   |   |      |                                                                     |
|---|---|---|---|------|---------------------------------------------------------------------|
| 1 | 2 | 3 | 4 | (40) | Teachers are contacted by the principal each day.                   |
| 1 | 2 | 3 | 4 | (41) | The principal is well prepared when he speaks at school functions.  |
| 1 | 2 | 3 | 4 | (42) | The principal helps staff members settle minor differences.         |
| 1 | 2 | 3 | 4 | (43) | The principal schedules the work for teachers.                      |
| 1 | 2 | 3 | 4 | (44) | Teachers leave the school grounds during the school day.            |
| 1 | 2 | 3 | 4 | (45) | The principal criticizes a specific act rather than a staff member. |
| 1 | 2 | 3 | 4 | (46) | Teachers help select which courses will be taught.                  |
| 1 | 2 | 3 | 4 | (47) | The principal corrects teachers' mistakes.                          |
| 1 | 2 | 3 | 4 | (48) | The principal talks a great deal.                                   |
| 1 | 2 | 3 | 4 | (49) | The principal explains his reasons for criticism to teachers.       |
| 1 | 2 | 3 | 4 | (50) | The principal tries to get better salaries for teachers.            |
| 1 | 2 | 3 | 4 | (51) | Extra duty for teachers is posted conspicuously.                    |
| 1 | 2 | 3 | 4 | (52) | The rules set by the principal are never questioned.                |
| 1 | 2 | 3 | 4 | (53) | The principal looks out for the personal welfare of teachers.       |
| 1 | 2 | 3 | 4 | (54) | School secretarial service is available for teachers' use.          |
| 1 | 2 | 3 | 4 | (55) | The principal runs the faculty meeting like a business conference.  |
| 1 | 2 | 3 | 4 | (56) | The principal is in the building before the teachers arrive.        |

- |   |   |   |   |      |                                                                      |
|---|---|---|---|------|----------------------------------------------------------------------|
| 1 | 2 | 3 | 4 | (57) | Teachers work together preparing administrative reports.             |
| 1 | 2 | 3 | 4 | (58) | Faculty meetings are organized according to a tight agenda.          |
| 1 | 2 | 3 | 4 | (59) | Faculty meetings are mainly principal-report meetings.               |
| 1 | 2 | 3 | 4 | (60) | The principal tells teachers of new ideas he has run across.         |
| 1 | 2 | 3 | 4 | (61) | Teachers talk about leaving the school system.                       |
| 1 | 2 | 3 | 4 | (62) | The principal checks the subject matter ability of the teachers.     |
| 1 | 2 | 3 | 4 | (63) | The principal is easy to understand.                                 |
| 1 | 2 | 3 | 4 | (64) | Teachers are informed of the results of a supervisor's visit.        |
| 1 | 2 | 3 | 4 | (65) | Grading practices are standardized at this school.                   |
| 1 | 2 | 3 | 4 | (66) | The principal ensures that teachers work to their full capacity.     |
| 1 | 2 | 3 | 4 | (67) | Teachers leave the school building as soon as possible at day's end. |
| 1 | 2 | 3 | 4 | (68) | The principal clarifies wrong ideas a teacher may have.              |

APPENDIX G:

COVER LETTER TO SUPERVISORS

## COVER LETTER TO SUPERVISORS

December 10, 1986

Name of Supervisor  
School District  
City, Wyoming

Dear (Name):

As a supervisor of elementary principals, your opinions are of great value as part of a doctoral study currently underway at Montana State University.

Of the many leadership behaviors identified by Effective School Research as directly affecting student achievement, I have selected three: "provides orderly atmosphere," "supports teachers," and "emphasizes achievement."

I feel that principals who perform highly on those leadership behaviors will facilitate schools with "open" climates. Their schools will be energetic, lively organizations which are moving toward their goals while satisfying the group members' social needs. Leadership acts will emerge easily and appropriately from both the group and the leader.

This area of research is important to the ongoing study of administration. Both the issue of positive leadership behaviors and organizational climate are in a constantly changing state and are of concern to educators like yourself who are seeking to foster meaningful and necessary improvements in school programs in Wyoming.

Since I understand how busy you and your staff are at this time of year, the study is designed to be completed during a regularly-scheduled staff meeting and take no longer than 45 minutes. Your teachers will be asked to complete the Organizational Climate Description Questionnaire (see Enclosure 1). This 68-item questionnaire measures the "general openness" of the school and takes about 40 minutes to complete. From the scores, a profile, or psycograph, for each school will be constructed which depicts the school's organizational climate. By comparing the profiles of different schools, the distinguishing features of their respective organizational climates will be drawn and profiles for each individual school will be developed to display the comparison between obtained subtest scores and established norms.

Teachers will also be asked to complete a 30-item school checklist (see Enclosure 2). This checklist will measure the perception of teachers about the performance of the principal on the three leadership behaviors mentioned above and should take five minutes to complete.

Principals in sample schools will be asked to complete a five-item biographical sheet (see Enclosure 3). Items from the three instruments mentioned above will be statistically analyzed for possible interaction.

This study already carries the endorsement of "Ike" McKay, Executive Director of the Wyoming Association of Elementary Principals; however, in order for it to become a reality, I need the support and participation of key administrators like yourself.

In closing, I sincerely hope that you see the merit of this dissertation problem and that you will contribute to its completion. I will be happy to send you a copy of my findings upon completion of the study. You will also receive a profile for each sample school in your district. This profile should be particularly helpful to you and your principals as you seek to measure and improve your current school programs.

Please be assured that all information will be treated in a confidential manner and that individual school or district names will not be reported in the study. The profiles mentioned earlier will be provided only for schools in participating districts. They are meant as a bonus for participating in the study.

Please take a moment to complete the enclosed Response Checklist and return it in the self-addressed, stamped envelope. I will be more than happy to telephone you if there are any unanswered questions or unresolved concerns hampering your ability to make a decision on the request for this study's execution in your respective school district.

Thank you for your time.

Sincerely yours,

Ed Wright

3 Enclosures

APPENDIX H

DATA FOR ORGANIZATIONAL CLIMATE DESCRIPTION  
QUESTIONNAIRE (OCDQ) SUBTESTS



Table 99. Description of subpopulation: "Hindrance."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 15.6667 | 2.2361       | 9     | 26   | 17.000  | 3.8730       | 9     |
| 2    | 9.8333  | 1.5859       | 12    | 27   | 17.1250 | 4.0861       | 8     |
| 3    | 16.8182 | 2.2724       | 11    | 28   | 16.8182 | 2.4421       | 11    |
| 4    | 15.6667 | 3.9686       | 9     | 29   | 14.5714 | 2.6992       | 7     |
| 5    | 13.0000 | 2.7080       | 7     | 30   | 17.8750 | 2.7484       | 8     |
| 6    | 17.5000 | 2.1213       | 10    | 31   | 15.8333 | 2.3290       | 12    |
| 7    | 14.7143 | 3.5923       | 7     | 32   | 13.9286 | 3.4203       | 28    |
| 8    | 16.6000 | 3.2728       | 10    | 33   | 15.0000 | 2.6312       | 14    |
| 9    | 14.2353 | 2.3593       | 17    | 34   | 16.8421 | 3.7898       | 19    |
| 10   | 14.5000 | 1.1952       | 8     | 35   | 17.7273 | 3.1950       | 22    |
| 11   | 15.8750 | 1.3562       | 8     | 36   | 14.5714 | 3.0472       | 7     |
| 12   | 17.1429 | 3.2878       | 7     | 37   | 15.0000 | 2.7889       | 19    |
| 13   | 15.1667 | 2.1672       | 12    | 38   | 17.2500 | 2.4133       | 28    |
| 14   | 15.3846 | 3.5482       | 13    | 39   | 13.8421 | 2.7338       | 19    |
| 15   | 13.2174 | 2.9226       | 23    | 40   | 17.6667 | 4.2740       | 6     |
| 16   | 14.1538 | 2.4099       | 13    | 41   | 15.1538 | 3.8911       | 13    |
| 17   | 15.6250 | 3.4200       | 8     | 42   | 15.4091 | 3.2021       | 22    |
| 18   | 15.1250 | 3.4809       | 16    | 43   | 17.6250 | 3.1734       | 24    |
| 19   | 15.5882 | 3.1634       | 17    | 44   | 12.2222 | 2.6822       | 9     |
| 20   | 16.0000 | 3.7749       | 17    | 45   | 15.3333 | 3.8816       | 6     |
| 21   | 16.4074 | 2.7493       | 27    | 46   | 13.3077 | 2.7967       | 26    |
| 22   | 14.5455 | 2.9449       | 11    | 47   | 17.1667 | 3.2427       | 12    |
| 23   | 18.9286 | 2.3685       | 14    | 48   | 16.9286 | 2.5560       | 14    |
| 24   | 16.6364 | 2.7303       | 11    | 49   | 17.3636 | 2.8038       | 22    |
| 25   | 15.2857 | 3.2514       | 7     | 50   | 15.5714 | 1.5119       | 7     |

Table 100. Description of subpopulation: "Intimacy."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 19.7500 | 2.1213       | 8     | 26   | 18.0000 | 3.7033       | 8     |
| 2    | 25.4545 | 2.4234       | 11    | 27   | 17.2857 | 2.1381       | 7     |
| 3    | 18.3636 | 3.4430       | 11    | 28   | 19.8182 | 2.4827       | 11    |
| 4    | 18.8889 | 3.7896       | 9     | 29   | 18.7143 | 2.0587       | 7     |
| 5    | 19.2857 | 4.1115       | 7     | 30   | 18.2222 | 1.5635       | 9     |
| 6    | 17.9000 | 3.7253       | 10    | 31   | 17.0833 | 2.9375       | 12    |
| 7    | 19.8333 | 2.8577       | 6     | 32   | 18.0000 | 3.0671       | 28    |
| 8    | 16.7778 | 2.0480       | 9     | 33   | 20.6429 | 4.2897       | 14    |
| 9    | 20.3333 | 2.7168       | 15    | 34   | 18.6500 | 2.3458       | 20    |
| 10   | 22.0000 | 1.3093       | 8     | 35   | 19.2727 | 3.6669       | 22    |
| 11   | 21.5556 | 2.6034       | 9     | 36   | 21.1250 | 2.9490       | 8     |
| 12   | 18.2222 | 3.5629       | 9     | 37   | 19.1000 | 3.4012       | 20    |
| 13   | 18.8182 | 2.9603       | 11    | 38   | 19.8571 | 2.8895       | 28    |
| 14   | 24.5833 | 2.3916       | 12    | 39   | 18.5294 | 2.4525       | 17    |
| 15   | 19.2727 | 2.9469       | 22    | 40   | 18.3750 | 4.3074       | 8     |
| 16   | 23.2143 | 2.0821       | 14    | 41   | 20.6667 | 3.6515       | 12    |
| 17   | 19.8750 | 3.3139       | 8     | 42   | 20.2609 | 3.5957       | 23    |
| 18   | 20.5625 | 2.7072       | 16    | 43   | 19.6957 | 2.9914       | 23    |
| 19   | 20.6471 | 3.7739       | 17    | 44   | 19.1111 | 3.1002       | 9     |
| 20   | 20.5882 | 2.7627       | 17    | 45   | 19.3333 | 3.7238       | 6     |
| 21   | 19.5517 | 2.7201       | 29    | 46   | 17.8519 | 3.2428       | 27    |
| 22   | 22.0909 | 2.7732       | 11    | 47   | 17.8462 | 3.3128       | 13    |
| 23   | 18.4615 | 3.6655       | 13    | 48   | 19.6429 | 3.5433       | 14    |
| 24   | 17.6364 | 2.6560       | 11    | 49   | 18.4167 | 3.1056       | 24    |
| 25   | 18.0000 | 3.5777       | 6     | 50   | 19.0000 | 1.8257       | 7     |

Table 101. Description of subpopulation: "Disengagement."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 21.8889 | 8.1155       | 9     | 26   | 24.1111 | 5.2308       | 9     |
| 2    | 16.0909 | 1.5783       | 11    | 27   | 22.2500 | 5.1755       | 8     |
| 3    | 21.6364 | 5.1434       | 11    | 28   | 22.8000 | 6.9250       | 10    |
| 4    | 20.6667 | 5.7009       | 9     | 29   | 21.8571 | 5.4598       | 7     |
| 5    | 17.7143 | 4.7509       | 7     | 30   | 25.0000 | 3.5707       | 9     |
| 6    | 19.5556 | 4.6128       | 9     | 31   | 24.0000 | 3.8847       | 12    |
| 7    | 22.2857 | 7.1114       | 7     | 32   | 19.3448 | 4.5847       | 29    |
| 8    | 24.5000 | 4.3012       | 10    | 33   | 17.5000 | 5.3313       | 14    |
| 9    | 20.6471 | 4.1973       | 17    | 34   | 22.0526 | 4.6842       | 19    |
| 10   | 20.1250 | 2.4749       | 8     | 35   | 20.3182 | 3.1379       | 22    |
| 11   | 15.7778 | 3.0732       | 9     | 36   | 16.7143 | 4.7157       | 7     |
| 12   | 19.4444 | 4.5856       | 9     | 37   | 19.7778 | 3.8586       | 18    |
| 13   | 20.0000 | 5.7155       | 13    | 38   | 19.5357 | 4.1140       | 28    |
| 14   | 19.0000 | 4.9360       | 12    | 39   | 18.0000 | 3.4793       | 20    |
| 15   | 17.5909 | 4.4041       | 22    | 40   | 32.1250 | 9.4633       | 8     |
| 16   | 19.9231 | 4.4246       | 13    | 41   | 18.5385 | 3.7775       | 13    |
| 17   | 24.2500 | 7.8876       | 8     | 42   | 18.0455 | 4.9615       | 22    |
| 18   | 23.0000 | 3.7914       | 17    | 43   | 18.7273 | 4.2109       | 22    |
| 19   | 22.4118 | 5.3974       | 17    | 44   | 15.6000 | 2.5033       | 10    |
| 20   | 22.0588 | 5.5280       | 17    | 45   | 18.6667 | 4.7610       | 6     |
| 21   | 20.3103 | 5.0007       | 29    | 46   | 21.9655 | 6.5437       | 29    |
| 22   | 23.5000 | 3.1002       | 10    | 47   | 24.2308 | 4.1864       | 13    |
| 23   | 23.9286 | 3.6261       | 14    | 48   | 22.0000 | 3.2344       | 14    |
| 24   | 20.5455 | 4.6982       | 11    | 49   | 21.9200 | 3.6733       | 25    |
| 25   | 21.2500 | 4.5277       | 8     | 50   | 26.3333 | 1.3663       | 6     |

Table 102. Description of subpopulation: "Esprit."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 29.2222 | 5.9745       | 9     | 26   | 30.5556 | 3.9721       | 9     |
| 2    | 36.5000 | 2.1532       | 12    | 27   | 27.4286 | 4.0766       | 7     |
| 3    | 27.5455 | 6.0393       | 11    | 28   | 27.9091 | 3.3001       | 11    |
| 4    | 26.1111 | 5.8190       | 9     | 29   | 27.2857 | 2.9841       | 7     |
| 5    | 34.8571 | 2.6095       | 7     | 30   | 27.1111 | 4.4001       | 9     |
| 6    | 28.0000 | 4.9216       | 10    | 31   | 27.4167 | 4.4611       | 12    |
| 7    | 30.0000 | 4.6547       | 7     | 32   | 28.5667 | 4.8115       | 30    |
| 8    | 28.2000 | 1.6865       | 10    | 33   | 31.2143 | 4.6439       | 14    |
| 9    | 30.3529 | 3.4810       | 17    | 34   | 29.2500 | 3.3698       | 20    |
| 10   | 26.7500 | 1.1650       | 8     | 35   | 30.7619 | 3.9103       | 21    |
| 11   | 34.2000 | 2.3944       | 10    | 36   | 32.2500 | 2.2520       | 8     |
| 12   | 27.6000 | 3.7771       | 10    | 37   | 28.3684 | 3.6699       | 19    |
| 13   | 31.0000 | 3.2660       | 13    | 38   | 32.1429 | 3.2285       | 28    |
| 14   | 35.1538 | 3.8911       | 13    | 39   | 32.1000 | 2.9718       | 20    |
| 15   | 31.5652 | 4.0432       | 23    | 40   | 24.4286 | 3.6450       | 7     |
| 16   | 33.2000 | 4.6476       | 15    | 41   | 31.3077 | 4.4419       | 13    |
| 17   | 28.1250 | 4.1897       | 8     | 42   | 33.0435 | 3.0373       | 23    |
| 18   | 32.0625 | 3.0653       | 16    | 43   | 31.4167 | 4.4224       | 24    |
| 19   | 31.3529 | 3.0607       | 17    | 44   | 31.4000 | 3.4705       | 10    |
| 20   | 32.6250 | 3.8622       | 16    | 45   | 29.8333 | 7.3598       | 6     |
| 21   | 29.4444 | 3.2146       | 27    | 46   | 29.0357 | 6.1070       | 28    |
| 22   | 30.8182 | 4.2619       | 11    | 47   | 29.9231 | 4.4246       | 13    |
| 23   | 25.8000 | 4.7539       | 15    | 48   | 29.6923 | 3.9451       | 13    |
| 24   | 27.8182 | 3.7635       | 11    | 49   | 28.6800 | 3.1849       | 25    |
| 25   | 28.8750 | 1.5526       | 8     | 50   | 30.0000 | 1.4142       | 7     |

Table 103. Description of subpopulation: "Production Emphasis."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 19.2222 | 3.4921       | 9     | 26   | 18.2222 | 3.4921       | 9     |
| 2    | 14.6364 | 2.8731       | 11    | 27   | 18.5000 | 2.1381       | 8     |
| 3    | 18.7273 | 3.0030       | 11    | 28   | 20.9091 | 3.1766       | 11    |
| 4    | 19.5000 | 1.6903       | 8     | 29   | 17.4286 | 1.3973       | 7     |
| 5    | 16.5714 | 3.3094       | 7     | 30   | 19.1111 | 3.7231       | 9     |
| 6    | 18.2000 | 3.1552       | 10    | 31   | 17.3896 | 2.1031       | 13    |
| 7    | 20.1667 | 4.5350       | 6     | 32   | 20.1481 | 2.8380       | 27    |
| 8    | 21.0000 | 3.6515       | 10    | 33   | 18.4286 | 2.4405       | 14    |
| 9    | 18.9375 | 3.4345       | 16    | 34   | 19.6111 | 2.6377       | 18    |
| 10   | 12.2500 | 1.3887       | 8     | 35   | 18.5909 | 3.2756       | 22    |
| 11   | 18.6667 | 2.9580       | 9     | 36   | 17.6667 | 2.0616       | 9     |
| 12   | 21.2500 | 3.2842       | 8     | 37   | 17.6667 | 2.6789       | 18    |
| 13   | 17.6667 | 2.4618       | 12    | 38   | 20.0000 | 2.2443       | 28    |
| 14   | 19.5000 | 2.6458       | 12    | 39   | 17.6842 | 3.8159       | 19    |
| 15   | 18.0000 | 3.0000       | 21    | 40   | 17.8750 | 2.3566       | 8     |
| 16   | 17.3333 | 3.6775       | 15    | 41   | 17.8132 | 2.2279       | 11    |
| 17   | 19.2500 | 4.3997       | 8     | 42   | 19.2727 | 2.7634       | 22    |
| 18   | 18.8235 | 2.6748       | 17    | 43   | 18.8889 | 2.9682       | 18    |
| 19   | 19.3750 | 2.8490       | 16    | 44   | 18.0000 | 2.0000       | 9     |
| 20   | 21.0625 | 2.6450       | 16    | 45   | 19.6000 | 3.5071       | 5     |
| 21   | 18.7857 | 2.9484       | 28    | 46   | 18.0000 | 3.9005       | 29    |
| 22   | 15.2727 | 3.1966       | 11    | 47   | 19.5833 | 2.5391       | 12    |
| 23   | 17.7692 | 1.8777       | 13    | 48   | 20.2857 | 2.9202       | 14    |
| 24   | 17.4545 | 3.5879       | 11    | 49   | 19.7500 | 2.9229       | 24    |
| 25   | 21.1250 | 3.2705       | 8     | 50   | 18.5714 | 1.9024       | 7     |

Table 104. Description of subpopulation: "Aloofness."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 19.5000 | 2.4495       | 8     | 26   | 23.4444 | 5.2705       | 9     |
| 2    | 19.5455 | 2.7336       | 11    | 27   | 22.3750 | 2.3867       | 8     |
| 3    | 20.6364 | 2.8731       | 11    | 28   | 24.0909 | 2.5082       | 11    |
| 4    | 21.6667 | 2.6458       | 9     | 29   | 23.0000 | 3.3166       | 7     |
| 5    | 21.2857 | 2.7516       | 7     | 30   | 20.7778 | 1.3944       | 9     |
| 6    | 21.6000 | 2.7568       | 10    | 31   | 20.9167 | 3.5537       | 12    |
| 7    | 22.5714 | 3.7353       | 7     | 32   | 21.5862 | 3.6500       | 29    |
| 8    | 21.6000 | 2.6750       | 10    | 33   | 21.2308 | 3.2953       | 13    |
| 9    | 22.7647 | 2.9902       | 17    | 34   | 22.4444 | 4.1618       | 18    |
| 10   | 20.0000 | 1.5119       | 8     | 35   | 21.0455 | 2.9355       | 22    |
| 11   | 21.8889 | 1.3642       | 9     | 36   | 17.4286 | 1.2724       | 7     |
| 12   | 23.0000 | 3.3912       | 9     | 37   | 23.2778 | 2.5160       | 18    |
| 13   | 21.8462 | 2.9111       | 13    | 38   | 20.8929 | 2.6575       | 28    |
| 14   | 18.6154 | 2.6312       | 13    | 39   | 21.7000 | 2.5361       | 20    |
| 15   | 19.4783 | 3.2734       | 23    | 40   | 20.6250 | 1.1877       | 8     |
| 16   | 19.4286 | 3.2514       | 14    | 41   | 19.0769 | 3.0403       | 13    |
| 17   | 21.8750 | 3.0909       | 8     | 42   | 20.2609 | 2.7339       | 23    |
| 18   | 21.0588 | 3.5614       | 17    | 43   | 20.4783 | 2.8583       | 23    |
| 19   | 21.0000 | 2.6220       | 17    | 44   | 22.3000 | 3.1287       | 10    |
| 20   | 21.1765 | 3.9089       | 17    | 45   | 18.2857 | 3.9036       | 7     |
| 21   | 20.1852 | 2.5425       | 27    | 46   | 20.6786 | 4.3974       | 28    |
| 22   | 21.0909 | 2.9818       | 11    | 47   | 22.1538 | 3.1845       | 13    |
| 23   | 21.0000 | 2.5635       | 15    | 48   | 21.7143 | 3.5394       | 14    |
| 24   | 20.4545 | 2.5442       | 11    | 49   | 21.2800 | 3.0485       | 25    |
| 25   | 23.3750 | 2.8253       | 8     | 50   | 24.1429 | 0.6901       | 7     |

Table 105. Description of subpopulation: "Consideration."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 12.4444 | 3.6439       | 9     | 26   | 14.3750 | 3.8522       | 8     |
| 2    | 13.8000 | 4.3919       | 10    | 27   | 12.2500 | 2.8661       | 8     |
| 3    | 10.6364 | 2.8381       | 11    | 28   | 14.8000 | 2.4404       | 10    |
| 4    | 9.8889  | 3.2956       | 9     | 29   | 13.0000 | 3.2660       | 7     |
| 5    | 12.0000 | 3.0000       | 7     | 30   | 13.4444 | 4.4190       | 9     |
| 6    | 10.9000 | 3.0714       | 10    | 31   | 13.4545 | 3.3871       | 11    |
| 7    | 13.4286 | 4.4668       | 7     | 32   | 10.4231 | 2.6103       | 26    |
| 8    | 13.0000 | 4.0311       | 9     | 33   | 11.6429 | 2.4995       | 14    |
| 9    | 12.5000 | 2.6530       | 14    | 34   | 12.1000 | 3.4928       | 20    |
| 10   | 8.7500  | 1.1650       | 8     | 35   | 14.2727 | 3.0734       | 22    |
| 11   | 12.5000 | 1.6036       | 8     | 36   | 12.3333 | 2.6926       | 9     |
| 12   | 12.6250 | 4.2741       | 8     | 37   | 10.1111 | 2.2723       | 18    |
| 13   | 13.1667 | 3.5119       | 12    | 38   | 13.8571 | 2.5344       | 28    |
| 14   | 19.0000 | 4.6710       | 12    | 39   | 11.9500 | 1.9324       | 20    |
| 15   | 13.1429 | 3.2293       | 21    | 40   | 9.0000  | 1.7728       | 8     |
| 16   | 15.8667 | 3.5024       | 15    | 41   | 10.7273 | 2.0538       | 11    |
| 17   | 10.8750 | 4.4541       | 8     | 42   | 14.9500 | 3.1368       | 20    |
| 18   | 14.7647 | 2.5379       | 17    | 43   | 11.8095 | 3.5301       | 21    |
| 19   | 13.6471 | 3.4989       | 17    | 44   | 14.7000 | 3.6225       | 10    |
| 20   | 13.5625 | 4.0327       | 16    | 45   | 14.3333 | 1.9664       | 6     |
| 21   | 12.5769 | 3.3006       | 26    | 46   | 12.4800 | 3.3926       | 25    |
| 22   | 12.7778 | 3.6324       | 9     | 47   | 12.6154 | 3.4288       | 13    |
| 23   | 12.4167 | 2.1933       | 12    | 48   | 12.9286 | 2.7023       | 14    |
| 24   | 13.9000 | 3.2813       | 10    | 49   | 12.9600 | 2.9223       | 25    |
| 25   | 13.8750 | 2.9970       | 8     | 50   | 16.2857 | 1.1127       | 7     |

Table 106. Description of subpopulation: "Thrust."

| Pop. | Mean    | Std.<br>Dev. | Cases | Pop. | Mean    | Std.<br>Dev. | Cases |
|------|---------|--------------|-------|------|---------|--------------|-------|
| 1    | 29.3333 | 9.8489       | 9     | 26   | 31.8889 | 6.8638       | 9     |
| 2    | 35.9167 | 4.8516       | 12    | 27   | 31.4286 | 5.6526       | 7     |
| 3    | 28.0000 | 5.4589       | 11    | 28   | 34.3636 | 3.6952       | 11    |
| 4    | 31.6667 | 6.9101       | 9     | 29   | 29.0000 | 5.4467       | 7     |
| 5    | 35.2857 | 5.6779       | 7     | 30   | 32.3333 | 6.4420       | 9     |
| 6    | 27.1000 | 9.5155       | 10    | 31   | 28.6923 | 6.9448       | 13    |
| 7    | 33.4286 | 7.1147       | 7     | 32   | 28.4828 | 6.0452       | 29    |
| 8    | 35.2000 | 4.2374       | 10    | 33   | 37.0000 | 6.4450       | 14    |
| 9    | 33.5882 | 3.3738       | 17    | 34   | 33.9474 | 4.3394       | 19    |
| 10   | 20.7500 | 3.3274       | 8     | 35   | 34.5455 | 5.4136       | 22    |
| 11   | 37.1111 | 4.1667       | 9     | 36   | 32.5714 | 4.7909       | 7     |
| 12   | 33.2000 | 5.6725       | 10    | 37   | 30.6842 | 5.4574       | 19    |
| 13   | 34.1538 | 5.3361       | 13    | 38   | 37.0800 | 4.6540       | 25    |
| 14   | 39.4286 | 3.5673       | 14    | 39   | 35.5789 | 4.5131       | 19    |
| 15   | 34.5714 | 4.3883       | 21    | 40   | 22.2500 | 4.8917       | 8     |
| 16   | 34.9286 | 3.9897       | 14    | 41   | 36.5455 | 4.5467       | 11    |
| 17   | 29.1429 | 7.4033       | 7     | 42   | 38.3750 | 3.4239       | 24    |
| 18   | 33.4706 | 4.9005       | 17    | 43   | 29.5417 | 5.2666       | 24    |
| 19   | 34.1765 | 3.8444       | 17    | 44   | 37.4000 | 4.6952       | 10    |
| 20   | 37.0000 | 5.4894       | 16    | 45   | 36.1429 | 2.9114       | 7     |
| 21   | 30.7407 | 4.8086       | 27    | 46   | 34.1034 | 7.2720       | 29    |
| 22   | 35.7273 | 5.0812       | 11    | 47   | 32.2308 | 4.3427       | 13    |
| 23   | 29.4000 | 5.5908       | 15    | 48   | 34.2857 | 4.4103       | 14    |
| 24   | 31.7273 | 3.9520       | 11    | 49   | 33.2500 | 4.8207       | 24    |
| 25   | 33.7500 | 5.5997       | 8     | 50   | 32.4286 | 2.2991       | 7     |



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