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SCHOOL PRINCIPALS

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THE LEADER BEHAVIOR OF OKLAHOMA SECONDARY
SCHOOL PRINCIPALS

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THE LEADER BEHAVIOR OF OKLAHOMA SECONDARY
SCHOOL PRINCIPALS

CHAPTER I

INTRODUCTION

Background and Need

For centuries writers have been intrigued by the concept of leadership and with the idea of specifying predictable relationships between what an organization's leader does and how the organization fares. Since the end of the Second World War there has been a dramatic change in the study of leadership. During this period, research emphasis shifted from a search for personality traits of acknowledged leaders to "a search for behavior that makes a difference in the performance or satisfaction of the followers."¹ The emphasis in this approach focused upon the

¹David G. Bowers and Stanley E. Seashore, "Predicting Organization Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly, XI (1966), pp. 238-39.

behavior of formal, appointed administrators charged with leadership responsibilities.

Although the behavioral approach provided additional insights into the nature of leadership, perhaps its greatest contribution is that of pointing out the need for a better understanding of leadership. Consequently, recent efforts utilizing the behavioral approach have been greatly concerned about dimensions of leadership. Such a preoccupation has been especially characteristic of work in educational administration.¹

The problem of educational leadership in a changing society is a complex one indeed, and the importance of research in this area cannot be overestimated. It has long been assumed that the productivity of American education is in part dependent on effective leadership by the principal. Yet it is not unusual to find that the practicing administrator, when confronted by the variety of leadership theories, may have come to regard the once halo-surrounded term "leadership" with a certain uneasiness, if not downright antipathy.

The term "leadership," . . . , may connote to the practitioner a whole set of actual and imagined . . .

¹Alan F. Brown, "Reactions to Leadership," Educational Administration Quarterly, III (Winter, 1967), p. 62.

prescriptions for his behavior . . . which, in the daily operation of his organization somehow get overlooked.¹

Hemphill has suggested that we distinguish between (a) administrator behavior, (b) administrative behavior, and (c) leadership behavior. By administrative behavior we refer to anything and everything that a person who holds an administrative post may do, both on and off his job. Leadership is that aspect of the leader's behavior which initiates a new form or procedure for accomplishing an organizational or group objective. Administrative behavior is that aspect of the leader's behavior which carries out existing or established procedures for reaching such objectives.²

"School principals," Hemphill states, "are expected both to lead and to administer, but in some respects these two expectations can be in conflict."³ Failure to make the distinction between leadership and administration is responsible for much of the confusion with regard to the evaluation of school administrators.

¹James M. Lipham, "Leadership and Administration," Behavioral Science and Educational Administration, ed. Daniel E. Griffiths, The Sixty-third Yearbook of the National Society for the Study of Education (Chicago: The University of Chicago Press, 1964), pp. 121-22.

²John K. Hemphill, "Personal Variables and Administrative Styles," Behavioral Science and Educational Administration, ed. Griffiths, p. 190.

³Ibid.

Cunningham suggests that the role of the principal has a "change agent" expectation and that this is one of the more important expectations held for him. He felt that "leader" and "change agent" have more in common with each other than either has with the term "administrator." He believed the change agent could

seek to modify goals, restructure curricula, restructure organization, re-model decision-making practices, shift the allocation and distribution of financial resources, or vitalize and revitalize professional personnel.¹

In view of the distinctions made between administrative and leadership behavior, it would seem to be of prime importance to determine if certain types of leader behavior are related to and can encourage change, providing an opportunity for effective administration at the same time. This distinction proposes the problem of evaluation and of criteria.

The absence of an ultimate criterion of organizational accomplishment renders it particularly difficult to determine the extent to which any given leadership act represents an accomplishment. . . . it is suggested, . . . , that additional research is needed which utilizes a multiple-criterion approach for the evaluation of leader effectiveness.²

¹Luvern L. Cunningham, "Viewing Change in School Organizations," Administrator's Notebook, XI (September, 1962).

²Lipham, p. 140.

Halpin suggested that changes in the organization's accomplishments are the best criteria of the administrator's effectiveness.¹ However, he adds, the social scientist may be temporarily forced to settle for criteria that fall short of this mark. These intermediate criteria usually take the form of ratings of the administrator's effectiveness. The rating method assumes that the judges' evaluations of the administrator are significantly correlated with changes in the organization's achievement attributable to the administrator. However, it is well-known that such ratings can be contaminated by a "halo" effect which often gives away the nature of the describer as well as the described.²

Because of the shortcomings of intermediate criteria of this sort, we differentiate, after Halpin, between the intermediate and ultimate criteria.

Whenever an intermediate criterion is posited, it must be examined critically and it must be recognized only as a stopgap. Its worth is tenuous until we can demonstrate that it is correlated significantly with objective criteria of changes in the organization's maintenance and achievement.³

The concept of leader behavior indicates that several different kinds of leadership are essential to the effective

¹Andrew W. Halpin, Theory and Research in Administration (New York: The Macmillan Company, 1966), p. 50.

²Ibid., p. 52.

³Ibid., p. 53.

functioning of the organization. Earlier theory once stated good leader behavior to be that which satisfied group needs; and, since needs of all kinds of groups were thought to be reducible to two (e.g., goal attainment and group maintenance), leader behaviors of all kinds of groups could be similarly reduced.¹

Halpin also suggested that the behaviors involved in balancing these "needs" were operationally defined in an instrument developed by the Leadership Studies group at Ohio State University. This instrument, the Leader Behavior Description Questionnaire, measures two general dimensions of the leader's behavior--Initiating Structure and Consideration--which, it was felt, parallel the two styles of leadership which help to satisfy both goal attainment and group maintenance.²

Results of studies using the Leader Behavior Description Questionnaire--1957 have been interpreted to show that "ideal" or "effective" leaders, as perceived by their work-groups, are those who score high on both dimensions. Halpin maintained that scores secured on these two dimensions may be used as an intermediate criterion for

¹Brown, Educational Administration Quarterly, p. 65.

²Halpin, pp. 37-8.

evaluating the effectiveness of the leader's behavior. This, he stated, is obviously a rough measure, but it does provide a first approach to the objective appraisal of leadership effectiveness.¹

Additional research has shown that the two factors--Initiating Structure and Consideration--alone are not adequate to account for all observable variance in leader behavior. Stogdill's theory of role differentiation and group achievement suggested additional factors which must be considered in investigating the behavior of the administrator.² Subsequently a new form--the Leader Behavior Description Questionnaire--Form XII--was developed which described perceived leader behavior along ten additional dimensions. This instrument more adequately encompassed the domain of perceived leader behaviors.³

In a recent study conducted with 170 Canadian school principals, Anderson and Brown isolated two major factors running through teacher descriptions of the principals on the new LBDQ-12 subscales. These factors were labeled

¹Halpin, p. 122.

²Ralph M. Stogdill, Individual Behavior and Group Achievement (New York: Oxford University Press, 1959).

³Stogdill, Manual for the Leader Behavior Description Questionnaire--Form XII (Columbus, Ohio: Bureau of Business Research, The Ohio State University, 1963), p. 2.

"system-oriented leadership" and "person-oriented leadership."¹

Production Emphasis, Initiating Structure, Representation, Role Assumption, Persuasion, and Superior Orientation, in that order, load on Factor I, clearly defining perceived leader behavior that responds to the needs of the school qua system. It is an institutional factor, herein called System-Oriented Leadership. Tolerance of Freedom, Tolerance of Uncertainty, Consideration, Demand Reconciliation, Integration, and Predictive Accuracy, on the other hand, load on Factor II, defining it as a measure of perceived behavior that responds to the needs of staff members qua persons. It is an interpersonal factor, herein called Person-Oriented Leadership.²

Results of this study suggested that school staffs tend to distinguish three clusters of effective principals: (1) those responding chiefly to system needs, (2) those responding chiefly to the need for effective transaction between the institution and the person, and (3) those responding chiefly to idiosyncratic needs of staff.³

The Present Study

The research reported in this paper is a study designed to test the assumption that perceived leader behavior is a major determinant of organizational change.

¹Barry D. Anderson and Alan F. Brown, "Who's A Good Principal?" The Canadian Administrator, VI (December, 1966), p. 10.

²Brown, p. 68.

³Anderson and Brown, p. 10.

Leader behavior, for the purposes of this study, was defined as the behavior of the formally designated leader of a specified work-group who was charged with leadership responsibilities --in this instance, the behavior of selected Oklahoma secondary school principals as perceived by their superintendents, members of their immediate staff, and by the principals themselves.

It is assumed at the outset that one can learn something of the leadership of a school from the work-group perceptions--and judgments drawn therefrom--of the principal. Users of the LBDQ-12 assume that how the leader really behaves is less important than how the staff perceives that he behaves. It is their perception of his behavior--if anything--that influences their own actions and thus determines what we call leadership.¹

Two levels of criteria are postulated: (1) an intermediate criteria of principal effectiveness defined as high ascribed scores on the dimensions of the LBDQ-12, and (2) a criteria of organizational achievement defined as a high number of innovations in the school. If the defined intermediate criteria of leader effectiveness is significantly related to changes in the organization's achievement,

¹Brown, p. 67.

we would expect certain behaviors on the part of the principal to be directly related to the adoption of new practices in his school.

Although this study makes no pretext of evaluating the "goodness" or "badness" of the innovations, it is assumed that innovations represent desirable and needed change and, as such, represent an organizational achievement due largely to the leadership of the principal. They represent, as Cunningham states, two aspects of a multi-group of "effectiveness" criteria--restructuring curriculum and restructuring organization.¹

With these assumptions in mind, an examination was directed at the relationship between the number of innovations in the school (the dependent variable) and the work-group descriptions of the principal's behavior on the twelve dimensions of the LBDQ-12 (the independent variables).

Statement of the Problem

The problem of this study was to determine the degree to which the leader behavior of selected Oklahoma public secondary school principals, as perceived by their work-groups, was related to the reported number of innovations in their schools. Related problems of the study are:

¹Cunningham, Administrative Notebook, XI.

1. To determine the type--System or Person--of leadership indicative of "high innovative" and "low innovative" principals and the specific behaviors most frequently and effectively exhibited by each group.

2. To determine if there are any differences among descriptions of the principals' behavior as perceived by the superintendents, the staff members, and the principals themselves.

More specifically, the study should answer the following questions:

1. Is there a difference in the leader behavior of "high innovative" and "low innovative" principals?

2. Which group is perceived by their different work-groups to be the more effective?

3. Are the two types of leadership (System and Person) compatible--do some principals perform well in both areas?

Delimitations and Scope of the Study

Data for the study was derived from two sources:

(1) a national inventory of educational innovations conducted by the North Central Association of Colleges and Secondary Schools' Commission on Secondary Schools in conjunction with the Kettering Foundation's Institute for

the Development of Educational Activity in the fall of 1966, and (2) descriptions of the leader behavior of selected principals as perceived by their superintendents, staff members and themselves.

One hundred and fifty-four Oklahoma secondary school principals participated in the North Central Study. The mean score of reported innovations for the group as a whole was 4.9. In order to test the hypotheses of the study, a sample of size 30 was deemed large enough for adequate analysis. Accordingly the fifteen principals reporting the highest number of innovations and the fifteen principals reporting the lowest number of innovations were to be selected according to specified criteria.

The "self-reporting" of the number of innovations in his school by the principal might be construed as a weakness. However, since each respondent identified himself on the questionnaire, and since each member school must make annual reports for continued accreditation, it was assumed that little discrepancy between reported and actual innovations occurred.

Further investigation showed that the top fifteen principals reported a minimum of 9 innovations with the highest reported number being 14. Four other principals

reported 9 innovations, making a total of 19 "high innovative" principals.

The 15 principals reporting the lowest number of innovations showed a minimum of 0 and a maximum of 2 innovations. Forty-seven schools met this criterion of two or less innovations.

Utilizing the Oklahoma Educational Directory¹ as the source, these 66 principals were delimited further in accordance with the following criteria:

1. The principal devotes a minimum of one-half time to the administration of a separate unit as defined below for the school year 1966-67

- A. Grades 7 - 12
- B. Grades 8 - 12
- C. Grades 9 - 12
- D. Grades 10 - 12.

2. The principal, his superintendent, and his staff-member respondents have a tenure in the prescribed school of at least three years prior to the study.

3. The reported innovations must have taken place during the tenure of the principal.

¹State Superintendent for Public Instruction, Oklahoma Educational Directory, 109-N (1964), 109-O (1965), 109-P (1966).

4. The principal has at least 12 staff members under his immediate supervision.

Of the original group of "high" and "low" innovative principals, thirty-six met these criteria. All thirty-six of the principals--17 "high innovative" and 19 "low innovative"--were invited to participate in the study.

Of the thirty-six principals invited to participate, thirty--15 "high innovative" and 15 "low innovative"--agreed to participate. The results of this study are based upon data from these 30 principals, their superintendents (n=30), and 5 staff members from each school (n=150). This represents an 86 per cent participation of the original group of 36. (Appendix A lists participant principals.)

The second source of data consisted of obtaining descriptions of the principals' behavior. Utilizing the LBDQ-12, descriptions of the selected principals were obtained from their two reference groups and from themselves. Since research findings argue against using the ratings from a single group in evaluating the principal, it was decided to include the superintendent and a randomly selected group of five staff members from each school.¹

¹Halpin, The Leadership Behavior of School Superintendents (Columbus, Ohio: College of Education, The Ohio State University, 1956), p. 85.

Since the principals were purposively rather than randomly selected, the results of this study may not be generalized to the entire population of Oklahoma secondary school principals. Also, of necessity, certain principals were eliminated because of failure to meet the requirements of size, tenure, etc. Separate junior high schools were also eliminated because they were not presently members of the North Central Association and therefore did not participate in the study.

It should be emphasized that the measures utilized in this study to describe behavior reflect perceptions rather than actual behavior itself and are therefore susceptible to whatever systematic bias this may introduce. Arguments pro and con on perception are inconclusive, and it is the opinion of the author that descriptions of behavior by those closely acquainted with the principal are more desirable than those of outside observers and are subject to less error.

Definition of Terms

1. Leader behavior--refers to the role of the principal and the behavior of the person in this role.
2. Leadership--is concerned with a separate evaluation of a person's performance in his role of principal.

In this instance, as evaluated by his superintendent, his staff, and by himself.

3. Effective Leadership--leader behavior evaluated by the different reference groups to be effective as determined by high mean scores on the dimensions of the LBDQ-12.

4. Ineffective Leadership--leader behavior evaluated by the different reference groups to be ineffective as determined by low mean scores on the dimensions of the LBDQ-12.

5. System-oriented Leadership--behavior, as described on the LBDQ-12, that responds chiefly to the needs of the school as the apersonalized system with its own goals, themes, and institutional existence.

6. Transactional Leadership--behavior that responds chiefly to the need for effective transaction between the institution and the person.

7. Person-oriented Leadership--behavior that responds chiefly to the idiosyncratic personal and professional needs of fellow beings on the staff.

8. Superintendent--an immediate superior of the principal. May be a supervisor, director, assistant superintendent, or the chief administrator of the school system.

9. Staff Member--an immediate member of the principal's staff. May be an assistant principal, a counselor, or a teacher.

10. Work-group--includes both staff members and superintendent.

11. Innovation--any practice not often in use in American high schools. In this study they are limited to the 27 listed in the North Central study.

12. High Innovative Principal--a principal who has at least nine reported innovations in his school.

13. Low Innovative Principal--a principal who has two or less reported innovations in his school.

Hypotheses to be Tested

H₀₁: There is no significant difference in the leader behavior, as perceived by their work-groups and as measured by mean ratings on the LBDQ-12, between "high innovative" and "low innovative" principals.

H₀₂: There are no significant differences among work-group descriptions of the principals' leader behavior.

Type, Frequency, and Effectiveness of Leadership

Anderson and Brown's model of leader behavior was utilized to conceptualize the type of leadership exhibited,

the frequency of leader behaviors, and the effectiveness of these behaviors as perceived by the different groups of respondents. According to this model, the leadership of a school may be placed into one of nine categories of the model with the aid of the scores on each of the factors, "system" orientation and "person" orientation (Figure 1).¹

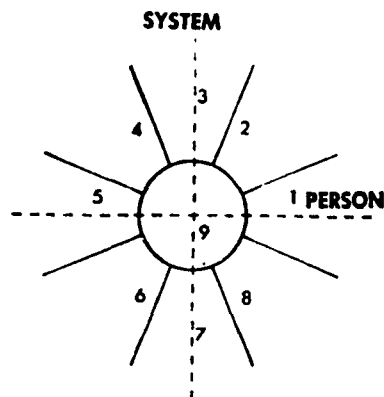


Fig. 1. Model of Leader Behavior

Thus, after plotting the scores of a school on the System and Person axes, the leadership of a school could be said to be high on one factor but neutral on the other (sectors 1, 3), low on one factor but neutral on the other (sectors 5, 7), high on one factor but low on the other (sectors 4, 8), high on both, low on both (sectors 2, 6),

¹Anderson and Brown, p. 10.

and neutral on both (area 9).

By utilizing this model two methods of grouping the leadership categories of a school may be done. One, the "Type of Leadership" method, throws together (a) categories 1, 8, and 7 into a person-leader type, (b) categories 3, 4, and 5 into a system-leader type, and (c) categories 2, 9, and 6 into a mixed type.¹

A second grouping of the categories may be called the "Frequency of Leader Behaviors" method. The frequency method carves up the model along a different diagonal, again into three groups. When a principal's scores plot in categories 1, 2, or 3, they got there because their staffs claimed (via LBDQ-12) he frequently exhibited leader behavior listed in the test. Scores plot in categories 4, 9, and 8 because the principal is seen as occasionally manifesting these behaviors; and when leadership is seldom if ever seen by the staff, the factor scores plot in categories 5, 6, or 7.²

Organization of the Study

In Chapter I, the background and need, the purpose, the problem statement, the hypotheses, and related information pertinent to the study were presented. Chapter II

¹Ibid., p. 11.

²Ibid.

consists of a review of literature related to the study. A description of the instruments, accompanied by a detailed account of the procedure and collection of data are presented in Chapter III. Presentation and analysis of the data and related findings are given in Chapter IV. In Chapter V, a summary of the study, conclusions based on the findings of the study, and recommendations and suggestions for further research are made.

CHAPTER II

REVIEW OF THE LITERATURE

Leadership Behavior and Administrative Behavior

The necessity for distinguishing between leadership behavior and administrative behavior has been advanced by Hemphill.¹ Lipham calls for this distinction, noting that the significant emphasis in leadership behavior is upon initiating change. Administrative behavior, on the other hand, is concerned with stabilizing and maintaining. He noted that while these two dimensions are similar in many ways--both are concerned with organizational goals--they are not synonomous.²

Lipham adds that the distinction made between the two concepts in no way implies that one is universally more appropriate, more important, or more difficult than the

¹Hemphill, Behavioral Science and Educational Administration, p. 190.

²Lipham, Behavioral Science and Educational Administration, p. 122.

other. The importance lies in the fact that the secondary school principal is expected both to "lead" and to "administer." He must at times wear an "administrative hat" and, at other times, wear a "leadership hat." Having but one head he should be aware of which "hat" he is wearing.¹

Campbell stated that most administrators seldom lead, but nonetheless, may perform a very useful service.

Moreover, to operationalize the concept of leadership removes the term from its indeterminate, cliché-ridden status and makes it useful to administration. An administrator leads when he secures a change in goals or procedures in an organization. By the very nature of organizations, leadership is required only on occasions, while administration or maintenance of the organization is a constant requirement. Frequent leadership or change would actually wreck most organizations.²

Lonsdale pointed out that an organization needs stability in order to survive, and it is the function of the administrator to assure this stability. However, too much stability can lead to rigidity, and rigidity can mean a fragility resulting in disintegration in times of stress.

What is needed for organizations in the present era is flexibility to accommodate to these disturbances--to initiate new structures or procedures, or to revise

¹Ibid., pp. 122-23.

²Roald F. Campbell, "Implications for the Practice of Administration," Behavioral Science and Educational Administration, p. 285.

the goals of the organization.¹

The important point, Lonsdale added, is that organizations should strive to develop a favorable orientation toward change, a willingness to change, and a readiness for change. When major changes are needed, leaders must be able to develop strategies of change, realizing that large-scale change is a process, not an event, and that it takes place over a period of time.²

Emphasizing the importance of the leader in the process of change, Culbertson stated that the capacity to cope constructively with change is the important test of leadership. This capacity involves, in part, the ability to innovate.³

Holdaway and Segar, in their study of the adoption process of innovations in the school, came to the conclusion that the principal must be regarded as a key figure in the process of change.

¹Richard C. Lonsdale, "Maintaining the Organization in Dynamic Equilibrium," Behavioral Science and Educational Administration, p. 174.

²Ibid., p. 176.

³Jack A. Culbertson, "The Preparation of Administrators," Behavioral Science and Educational Administration, p. 315.

Principals should see themselves as important agents in the change process, be constantly searching for areas where they can innovate, and realize that they can, by their practices, influence innovation decisions made by superintendents . . .¹

Lortie feels that innovative situations are among the most promising areas for fruitful and relevant cooperation between administrative practitioners and research specialists.² He suggests, as does Cunningham,³ certain theoretical concepts that can be of considerable benefit to the principal in the process of initiating change in his school. In line with these suggestions, Chesler, Schmuck, and Lippitt state that the degree to which the principal accurately perceives the expectations and interests of his teachers is positively related to the staff's tendency to change.⁴

Leader Behavior and Leadership

Halpin made a distinction between "leader behavior" and "leadership," stating that this distinction is necessary

¹E. A. Holdaway and J. E. Seger, "Change and the Principal," The Canadian Administrator, VI (January, 1967), p. 16.

²Dan C. Lortie, "Change and Exchange: Reducing Resistance to Innovation," Administrator's Notebook, XII (February, 1964).

³Cunningham, Administrator's Notebook, XI.

⁴Mark Chesler, Richard Schmuck, and Ronald Lippitt, "The Principal's Role in Facilitating Innovation," Theory Into Practice, II (December, 1963), pp. 269-77.

in view of the fact that the most frequent description of the school administrator is that of "leader."

This dilemma of definition emerges from the fact that we have incorporated into the term "leadership" both descriptive and evaluative components, and have thus burdened this single word (and the concept it represents) with two connotations: one refers to a role and the behavior of a person in this role, and the other is an evaluation of the individual's performance in the role.¹

The concept of leader behavior avoids this definitional dilemma. This concept, according to Halpin:

. . . first of all, focuses upon observed behavior rather than upon a posited capacity inferred from this behavior. No presuppositions are made about a one-to-one relationship between leader behavior and an underlying capacity or potentiality presumably determinative of this behavior. By the same token, no apriori assumptions are made that the leader behavior which a leader exhibits in one situation will be manifested in other group situations. . . . Nor does the term "leader behavior" suggest that this behavior is determined either innately or situationally. Either determinant is possible, as is any combination of the two, but the concept of leader behavior does not itself predispose us to accept one in opposition to the other.²

The concept of leader behavior also indicates that several different kinds of leadership are essential to the effective functioning of the organization. In order for the leader to be "effective," he must balance the needs of

¹Halpin, Theory and Research in Administration, p. 82.

²Halpin, The Leadership Behavior of School Superintendents, p. 12.

the organization and the needs of the individuals within the work-group.

Barnard suggested this dual responsibility for the executive by distinguishing between effectiveness and efficiency. By effectiveness he meant the attainment of the goals of the organization, and by efficiency he meant their achievement with due regard for the people in the organization.¹ Similar dimensions were identified by Cartwright and Zander as group achievement and group maintenance.² Kahn and Katz identified two general types of supervisory behavior--"employee orientation" and "production-orientation."³ Argyris expressed much the same idea in his treatment of "organization" and "personality" conflict.⁴ Getzels and Guba identified two polar styles of leadership--"nomothetic," which emphasizes the

¹Chester I. Barnard, The Functions of the Executive (Cambridge, Mass.: Harvard University Press, 1938), p. 60.

²Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics: Research and Theory, 2nd ed. (Evanston, Ill.: Row, Peterson, & Company, 1960), p. 496.

³Robert L. Kahn and Daniel Katz, "Leadership Practices in Relation to Productivity and Morals," Group Dynamics: Research and Theory, pp. 554-70.

⁴Chris Argyris, Personality and Organization (New York: Harper & Brothers, 1960), p. 5.

requirements of the institution, and "idiographic," which treats the needs and demands of the individual.¹ Guba and Bidwell stated that role occupancy has at least two aspects: (1) behavior which attains institutional or group goals, and (2) behavior which satisfies individual needs.²

Although, as Hills states, none of these formulations is completely equivalent, the degree of convergence is apparent. Each identifies a set of concepts which refer to the same phenomenon--"the necessity for all groups, formal and informal, to accomplish both the goals of the individual members of the group and the collective goals."³

The Ohio State Leadership Studies

In 1945, under the direction of Dr. Carroll V. Shartle, the Ohio State Leadership Studies, involving scholars from several different disciplines, were initiated.

¹Jacob W. Getzels and Egon G. Guba, "Social Behavior and the Administrative Process," School Review, LXV (Winter, 1957), pp. 423-41.

²Egon G. Guba and Charles E. Bidwell, Administrative Relationships, Monograph No. 4 (Chicago: Midwest Administration Center, University of Chicago), p. 1 in The Bulletin of the National Association of Secondary School Principals, Vol. XLIII, p. 97.

³R. Jean Hills, "The Representative Function: Neglected Dimension of Leadership Behavior," Administrative Science Quarterly, Vol. VIII (June, 1963), p. 85.

These studies took the approach to the topic of leadership as that of examining and measuring performance or behavior rather than human traits. Although none of the studies conducted by this group were exactly the same in their approach, all of them had one thing in common. They all used the same instrument--the Leader Behavior Description Questionnaire.¹

Out of the work of this group two dimensions of leadership--Initiating Structure and Consideration--have emerged as the most widely accepted significant dimensions for describing leader behavior. These two dimensions were delineated by Halpin and Winer² from a factor analysis of the responses of air craft crew members who described the leader behavior of their commanders on an adaptation of the original form of the LBDQ by Hemphill and Coons.³ The dimensions of Initiating Structure and Consideration

¹Ralph M. Stogdill and Alvin E. Coons, eds., Leader Behavior: Its Description and Measurement, Research Monograph No. 88 (Columbus, Ohio: The Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1957), p. vii.

²Andrew W. Halpin and B. James Winer, "A Factorial Study of the Leader Behavior Descriptions," Leader Behavior: Its Description and Measurement, pp. 39-51.

³John K. Hemphill and Alvin E. Coons, Leader Behavior Description (Columbus, Ohio: Personnel Research Board, the Ohio State University, 1950).

accounted for approximately 34 and 50 per cent, respectively, of the common variance. Halpin summarized the important findings of these studies as follows:

1. The evidence indicates that Initiating Structure and Consideration are fundamental dimensions of leader behavior, and that the LBDQ provides a practical and useful technique for measuring the behavior of leaders on these two dimensions.

2. Effective leader behavior is associated with high performance on both dimensions.

3. Superiors tend to be more concerned with the Initiating Structure aspects of the leader's behavior. On the other hand, subordinates are more concerned with the Consideration the leader extends to them as group members. This difference in group attitude appears to impose upon the leader some measure of conflicting role-expectations.

4. High Initiating Structure combined with high Consideration is associated with favorable group attitudes and with favorable changes in group attitudes.

5. There is only a slight positive relationship between the way leaders believe they should behave and the way in which their group members describe them as behaving.¹

¹Halpin, Theory and Research in Administration, pp. 97-9.

The Leader Behavior of the School Superintendent

The preceding series of studies provided the chief impetus for Halpin's monumental study of 50 Ohio school superintendents. His objective was to determine the relationship between the superintendent's own perception of how he behaved on the Initiating Structure and Consideration dimensions and his board and staff's perceptions. Another purpose was to discover the corresponding relationship between the superintendent's, the board's, and the staff's beliefs concerning how he should behave as a leader. Although not directly concerned with evaluating the superintendent, Halpin was determined to examine his findings for implications for improving present methods of evaluating the job performance of superintendents.

As a result of this study Halpin found that:

The leadership ideology of board and staff members, and of the superintendents themselves, is essentially the same. Effective or desirable leadership behavior is characterized by high scores on both Initiating Structure and Consideration. Conversely, ineffective or undesirable leadership behavior is marked by low scores on both dimensions.¹

Although the three respondent groups all agreed on this Ideal, the behavior of the sample of superintendents

¹Halpin, The Leadership Behavior of School Superintendents, p. 79.

fell significantly short of the Ideal.

On the one hand, these administrators demonstrate good leader behavior in their high Consideration for members of their staffs; but on the other, they fail to Initiate Structure to as great an extent as is probably desirable. As a group, they appear somewhat disinclined to Initiate Structure in their interaction with group members.¹

Halpin, in speculating for possible reasons for this finding, noted that in his discussions with the administrators involved in the study, they tended to view Consideration and Initiating Structure as incompatible forms of leader behavior. They were inclined to feel that the dimension of Initiating Structure was undemocratic. Yet the correlations for both the staff descriptions and the board members' descriptions on the LBDQ-Real suggest that there is nothing negative or antithetical in the interdimensional relationship. In fact, they suggest that the superintendents can stress both dimensions when they believe it is worth the effort.

Evidence from this study showed that the leader's description of his own leadership behavior and his concept of what his behavior should be have little relationship to others' perceptions of his behavior. This was especially true in respect to Consideration. However, how his

¹Ibid.

immediate associates perceive his behavior as indicated by their responses on the LBDQ-Real can provide a reliable gauge of his leadership behavior in respect to the Initiating Structure and Consideration dimensions.¹

Another finding of this study indicated that the superintendents differentiated their role behavior. In dealing with their boards they tended to be effective as leaders, but were inclined to be less effective in working with their staffs. The superintendent's tendency to play different roles with the board and staff was revealed by the lack of relationship between the board and staff descriptions of the superintendent's leader behavior. This finding has important implications, as Halpin stated, for evaluating the effectiveness of the superintendent's job performance. The main implication concerns the use of board member ratings as the criterion of leadership effectiveness. The findings, Halpin noted, provide two cogent arguments against this practice.

First, we have noted that the board members show considerably less than perfect agreement in simply describing how the superintendent behaves, a finding which casts serious doubt upon how much board-member agreement we can expect to find among independent evaluations of the superintendent's leadership effectiveness. . . . Second, in evaluating the superintendent we must take into account information from all

¹Ibid., p. 85.

relevant reference groups. When the descriptions of the superintendent's behavior emanating from two relevant reference groups such as the board and staff are not significantly correlated, it is all the more imperative that data from both sources be examined as potential criteria.¹

Halpin stated that his findings point up the need for a multiple-criterion approach to the study of the leadership effectiveness of school superintendents.

This means that we must first establish several independent, objective criteria of the superintendent's effectiveness and then determine the relationship between (a) these criteria and selected predictor variables and (b) the criteria themselves. Predictor variables can be posited readily enough. What we lack are dependable, objective criteria of effective school administration.²

These criteria, Halpin noted, involve value-judgments and, as such, are a prerogative of the local community. However, these should be informed choices and research can make a trenchant contribution by furnishing dependable, objective data that will permit wiser decisions. He adds:

Until such time as we are sure of the ultimate criteria we seek, we may be wise to settle for "intermediate" criteria that have strong presumptive evidence in their favor. The LBDQ-Real scores may be construed as an intermediate criterion of this kind.³

¹Ibid., p. 82.

²Ibid.

³Ibid., p. 84.

Other Studies

Several studies were reported in the literature that have used the LBDQ and are of a similar nature to the previous studies. Evenson, in a study of the leadership behavior of high school principals, reports findings that are consistent with those of Halpin.¹

Lipham and associates of the Midwest Administration Center at the University of Chicago conducted an intensive study of on-the-job behavior of school superintendents in four Midwestern communities. The study revealed that the dimensions of Initiating Structure and Consideration were useful for classifying leader behavior, accounted for a relatively small percentage of the on-the-job behavior of school superintendents, were not of the same order, and were interactive in nature. In addition, the dimension of Initiating Structure was found to be particularly useful for distinguishing between leadership and administration.²

¹Warren L. Evenson, "Leadership Behavior of High School Principals," The Bulletin of the National Association of Secondary School Principals, XLIII (September, 1959), pp. 96-101.

²Lipham, "Initiating Structure and Consideration," Observation of Administrator Behavior, ed. by Staff Associates, Midwest Administration (Chicago: University of Chicago, 1959), pp. 27-68 in Behavioral Science and Educational Administration, pp. 135-38.

Other studies using the LBDQ have shown high scores on these dimensions to be related to several intermediate criteria of success. Miklos noted that high scores on the structure and consideration dimensions were associated significantly with a high degree of principal-teacher agreement on expectations for the role of the principal.¹ Keeler and Andrews found high scores by principals on these same dimensions to be related to the productivity of the school, measured in terms of student achievement.² Benevento's study of principals shows that behavior, high on both dimensions, was related to communicative consonance and communicative reception on the part of the staff.³

Leader Behavior Description Questionnaire--Form XII⁴

It has not seemed reasonable to believe that two factors are sufficient to account for all the observable

¹Erwin Miklos, "The Role Theory in Administration," Canadian Administrator (November, 1963), pp. 5-8.

²B. T. Keeler and J. H. M. Andrews, "Leader Behavior of Principals, Staff Morale, and Productivity," Alberta Journal of Education, IX (September, 1963), pp. 179-91.

³Phillip Benevento, "Administrative Communication: A Study of Its Relationship to Administrative Leadership" (Microfilmed PhD. Dissertation, Syracuse University, 1958).

⁴Stogdill, Manual for the Leader Behavior Description Questionnaire--Form XII.

variance in leader behavior. However, as Shartle observed, no theory was available to suggest additional factors.¹ A new theory of role differentiation and group achievement by Stogdill, and the survey of a large body of research data that supported that theory, suggested that a number of variables operate in the differentiation of roles in social groups. Possible factors suggested by the theory are the following: tolerance of uncertainty, persuasiveness, tolerance of member freedom of action, predictive accuracy, integration of the group, and reconciliation of conflicting demands. Possible new factors suggested by the results of empirical research are the following: representation of group interests, role assumption, production emphasis, and orientation toward superiors.²

Marder reported the first use of the new scales in the study of an army airborne division and a state highway patrol organization.³ Day used a revised form of the

¹C. L. Shartle, Leader Behavior: Its Description and Measurement, p. 4.

²Stogdill, Individual Behavior and Group Achievement.

³E. Marder, Leader Behavior as Perceived by Subordinates as a Function of Organizational Level (unpublished Master's thesis, The Ohio State University Library, 1960).

questionnaire in the study of an industrial organization.¹ Other revisions were employed by Stogdill, Goode, and Day in the study of ministers and leaders in community development,² United States senators,³ and presidents of corporations.⁴ Stogdill has used the new scales in the study of industrial and governmental organizations.⁵ Form XII represents the fourth revision of the questionnaire and it is subject to further revision in view of subsequent research.

Subsequent research utilizing Form XII of the LBDQ is rather meager. Jacobs utilized the new scale in an attempt to measure the degree to which the number of curricular innovations in selected Michigan public junior high

¹D. R. Day, Basic Dimensions of Leadership in a Selected Industrial Organization (Doctor's dissertation, The Ohio State University Library, 1961).

²Ralph M. Stogdill, Omar S. Goode, and David R. Day, "New Leader Behavior Description Subscales," The Journal of Psychology, LIV (1962), pp. 259-69.

³Stogdill, Goode, and Day, "The Leader Behavior of United States Senators," The Journal of Psychology, LVI (1963), pp. 3-8.

⁴Stogdill, Goode, and Day, "The Leader Behavior of Corporation Presidents," Personnel Psychology, XVI (1963), pp. 127-32.

⁵Stogdill, Managers, Employees, Organizations (Columbus: The Ohio State University, Bureau of Business Research, 1965).

schools was associated with administrative leadership. Classifying the schools according to number of innovations, the scores of five rating teachers from each school were averaged for each of the twelve dimensions of the LBDQ to provide an average score for each of the twelve dimensions for each principal. Findings revealed that the high innovative principals displayed a different type of leader behavior than the low innovative principals on six of the twelve dimensions. The high innovative principals received higher ratings than the low innovative principals on the following dimensions: (1) initiating structure, (2) predictive accuracy, (3) representation, (4) integration, (5) persuasion, and (6) consideration. His findings also showed no significant relationships between the amount of curricular innovation in the schools and the factors of size and wealth.¹ Table 1 shows Jacobs findings.

¹Jan Wayne Jacobs, "Leader Behavior of the Secondary School Principal," The Bulletin of the National Association of Secondary School Principals, XLIX (October, 1965), pp. 13-17.

TABLE 1

**LEADER BEHAVIOR DESCRIPTION QUESTIONNAIRE RESULTS FOR
HIGH AND LOW INNOVATIVE PRINCIPALS**

<i>Dimension</i>	<i>High Innovative Principals</i>		<i>Low Innovative Principals</i>		<i>t ratio*</i>
	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	
1. Representation	20.96	.95	19.64	.95	2.81 ^b
2. Demand Reconciliation	21.04	1.00	19.35	2.43	1.79
3. Toleration of Uncertainty	36.71	3.78	35.55	1.47	.81
4. Persuasion	39.69	1.49	36.65	3.50	2.26 ^a
5. Initiating Structure	41.21	1.14	38.53	1.84	3.52 ^a
6. Tolerance of Freedom	42.20	1.45	40.21	3.14	1.63
7. Role Assumption	41.19	1.42	37.65	5.11	1.89
8. Consideration	40.90	1.66	38.04	3.20	2.24 ^a
9. Production Emphasis	32.94	2.34	35.05	1.13	-1.21
10. Predictive Accuracy	20.55	1.17	18.14	.82	4.78 ^a
11. Integration	20.68	1.43	18.31	2.19	2.57 ^a
12. Superior Orientation	38.19	3.35	36.85	2.68	.88

* To be significant at the .05 level of confidence, a "t" ratio has to be at least 2.13.

^a Significant at the .01 level of confidence.

^b Significant at the .02 level of confidence.

^c Significant at the .05 level of confidence.

The most comprehensive study reported in the literature to date was that conducted by Anderson and Brown. In a study sponsored jointly in Alberta by the Council on School Administration and The University of Calgary, the authors utilized staff descriptions of the principal's leader behavior (on the LBDQ-12) from 170 schools in an attempt to simplify the conceptualization of leadership.

Specifically, no attempt was made to challenge Stogdill's 12 subscales; instead their usefulness will be extended by: (1) demonstrating what interrelationships do exist, (2) collapsing their complexity into fewer factors, (3) ordering them into a systematic notion of leadership,

and (4) suggesting their differential contributions to some leadership criteria.¹

When the LBDQ-12 data were compiled and the scores of the twelve leader behavior subscales were intercorrelated, a principal components factor analysis was performed in order to simplify the conceptualization of leadership. This analysis led to the identification of two major factors running through the subscale scores from each school. These two factors, accounting for three-fourths of the test variance, were labeled "system-oriented leadership" and "person-oriented leadership."²

Factor I--behavior that responds to the needs of the school as the apersonalized system with its own goals, themes, and institutional existence, and Factor II--behavior that responds to the idiosyncratic personal and professional needs of fellow beings on the staff.³

¹Brown, Educational Administration Quarterly, III, p. 66.

²Anderson and Brown, The Canadian Administrator, VI, p. 10.

³Brown, Educational Administration Quarterly, III, p. 69.

TABLE 2

LOADINGS OF LBDQ-12 SUBSCALES ON TWO
VARIMAX FACTORS (N=170)

	Factor I "System" Orientation	Factor II "Person" Orientation	Identi- fying Factor
1. Production Emphasis	.87	-.14	I
2. Initiating Structure	.89	.10	I
3. Representation	.78	.17	I
4. Role Assumption	.77	.41	I
5. Persuasiveness	.73	.42	I
6. Superior Orientation	.57	.50	I
7. Predictive Accuracy	.62	.63	II
8. Integration	.62	.68	II
9. Demand Reconciliation	.51	.73	II
10. Consideration	.29	.86	II
11. Tol. of Freedom	.09	.85	II
12. Tol. of Uncertainty	-.11	.86	II
Percent Total Variance	40	36	

As Brown relates, the cause for rejoicing over the discovery of these two factors is not because they are "totally new and incredibly different," but rather because they are familiar and meaningful. The two factors can be understood partly in terms of Getzels' nomothetic and idio-graphic dimensions, Halpin's initiating structure and consideration, and other similar conceptualizations as previously mentioned.¹

¹Ibid., pp. 68-9.

A Conceptual Structure for Leadership

The theoretical antecedents of the proposed system and person factor labels help to amplify their meaning as does the pattern of obtained subscale loadings which, when properly arranged by Brown, define a gradual shading of meaning from one subscale to another. (See Figure 2.)

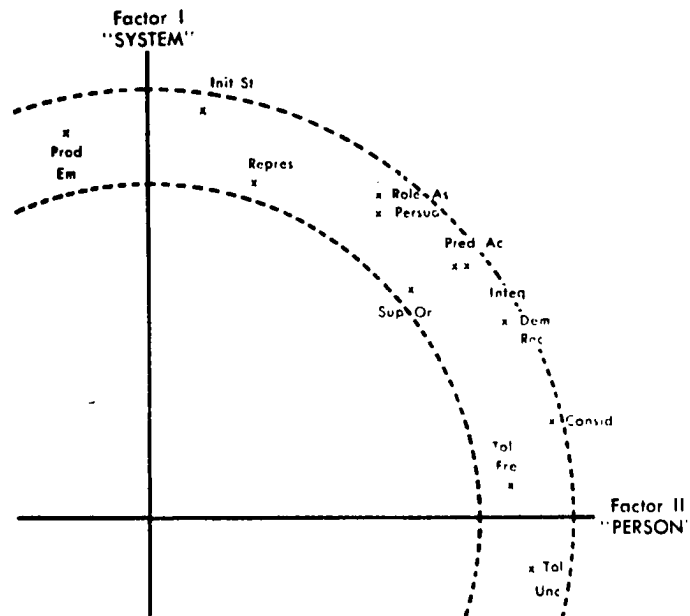


Fig. 2. LBDQ-12 Subscale Loadings on Factors I and II

Although system and person factors are themselves orthogonal, the subscales load without exception on both factors but in just slightly different proportions. Thus may twelve concepts of leadership activity be assembled in an ascending or descending sequence

from (1) those activities responding chiefly to system needs (Initiating Structure, Production Emphasis, Representation), through (2) those activities responding chiefly to the need for effective transaction between the institution and the person (Integration, Predictive Accuracy, Superior Orientation), to (3) those activities responding chiefly to idiosyncratic needs of staff (Tolerance of Freedom, Tolerance of Uncertainty, Consideration).

When one considers that the negative of each of the 12 leadership attributes could be defined operationally and plotted opposite its positive in Figure 2, there appears a circle that would be only partially incomplete. The phenomenon of leadership, at least insofar as it is represented by staff reactions, conforms to a circumplex model, part of which has yet to be filled in by further and more imaginative research.

Leadership, it now becomes clear, is similar to many other forms of interpersonal behavior in that it is characterized by two major and independent axes, a control dimension and a cathexis dimension, which shade into each other at the level of specific interpersonal behaviors made up in varying degrees of both.¹

Interpreting leadership criteria in terms of administrative outputs--teacher ratings of (1) satisfaction, (2) confidence in the principal, and (3) school performance estimate--Anderson and Brown used multiple linear-regression analysis to test each output criterion against leadership variables in terms of each of the 12 standardized subscale scores and system and person factor scores. Additional variables of school situation--size, type, staff qualifications, etc.--and principal characteristics--age, sex,

¹Ibid., pp. 69-70.

experience, education, etc.--were also included in the analysis.

In general, the research indicated that the type of leader behavior exhibited by a principal is in itself unimportant. On the other hand, the frequency of leader behavior is important insofar as it is positively associated with measures of staff satisfaction and their confidence in the principal.

Type and frequency of leader behavior were found not to be associated with the background data on the principal. Age, sex, past experience and training on the basis of the leadership criterion used were unimportant.

With one exception there was a lack of association between situational factors and type or frequency of leader behavior. The exception was found in some combined schools consisting of grades one through eleven or twelve. Staffs in these schools perceive less frequent leader behavior in their principals than do staffs of other school types. Table 3 shows Brown's comparison of this study with similar studies.

TABLE 3
COMPARATIVE LBDQ-12 MEANS*

Subscale	Educational Administrators (N = 170)	Corporation Presidents (N = 55)	Labor Presidents (N = 44)	College Presidents (N = 55)	Community Leaders (N = 57)
1. Representation	39.6	41.0	44.4	42.8	39.2
2. Demand Reconciliation	39.9	41.2	43.0	—	39.4
3. Tolerance Uncertainty	36.9	35.9	40.4	37.2	37.7
4. Persuasiveness	37.0	40.1	43.1	41.1	39.5
5. Initiating Structure	38.3	38.5	38.3	37.7	37.2
6. Tolerance Freedom	41.2	38.9	38.0	39.6	36.4
7. Role Assumption	40.1	42.7	43.3	43.5	39.8
8. Consideration	39.6	41.5	42.3	41.3	41.1
9. Production Emphasis	33.5	38.9	36.0	36.2	35.4
10. Predictive Accuracy	36.8	40.1	41.7	—	39.5
11. Integration	36.0	—	—	—	—
12. Superior Orientation	37.8	43.2	—	42.9	—
Average	38.2	40.2	41.1	40.3	38.5

* Data for corporation, labor, college and community leaders adopted from R. M. Stogdill, *Manual for LBDQ-12*.

From inspection one derives the general image of the principal, as compared with the other leaders, as a very tolerant fellow with little upward drive or productivity push who probably appears to his teachers much like a community leader, certainly not like an executive president. "He looks after his job," the teachers seem to say in scales 6, 7, and 9, those at the extremes, "and lets us look after ours."¹

¹Ibid., pp. 65-6.

Implications for Practice

First, a concern with leadership is important. This concern, this desire to lead, should result in more frequent leader behavior and in turn should result in a more confident and professionally satisfied staff. Second, the study indicates that debate over the relative merits of a "system" or a "person" oriented approach to a leadership problem is unwarranted. A school staff accepts either form of leadership, so long as strength in one form is not cancelled out by a disproportionately poor showing on the other. Third, a principal who wishes to lead his staff effectively need not dwell at length upon the situational or individual factors which he feels will impede leadership. By and large the influence of such factors in individual cases will be felt because they cause inaction on the part of the principal, not because they actually impede his leadership. . . . Finally, it will be unusual for a principal to be regarded by his staff as a good leader if his own perceptions of staff members as individuals or as a group are inaccurate, distorted, projected or oversimplified, . . .

Who is a good principal? The responses of 1551 Alberta teachers offer no answer that is final or absolute but do strongly suggest that the good principal--in their terms of staff satisfaction, confidence in the principal, and feeling of school success--is simply he who frequently leads his staff.¹

The statistical and conceptual structure of leadership developed by Anderson and Brown received compelling support from a recent study conducted independently by Keith Punch at Ontario Institute for Studies in Education. Punch analyzed LBDQ-12 data from 48 Ontario elementary

¹Anderson and Brown, The Canadian Administrator, VI, pp. 11-12.

schools, performing both a principal components solution and an image analysis. Both analyses had the same results--the two factors, System and Person, turned up, with substantially the same subscale loadings on each factor, forming the same partial circumplex patterning of relationships as did the analysis of 170 Alberta schools reported by Anderson and Brown.¹

Summary

The evidence from the studies cited support the thesis that administration and leadership, while similar and of almost equal importance, are not synonymous. Leadership is more related to change and innovation in the school than is administration which has to do with utilizing existing structure to maintain the organization.

The effective principal must "maintain the school in dynamic equilibrium." He must initiate needed changes while, at the same time, be concerned with stabilizing and maintaining the organization.

The concept of leader behavior indicates that several different kinds of leadership are necessary if the organization is to move toward its goals. The leader, if he is to

¹Brown, Educational Administration Quarterly, III, p. 73.

be effective, must balance the needs of the organization and the needs of the individuals in the work-group.

Effective leadership is characterized by high scores on the LBDQ-12. These dimensions represent fundamental and pertinent aspects of the principal's leadership skill. They are closely related to innovation and change in the school.

The dimensions of leadership on the LBDQ-12 are easier to conceptualize when they are collapsed into two factors--System and Person. Research seems to indicate that a principal may be effective on either or both so long as strength in one form is not cancelled by a disproportionately poor showing on the other. The evidence would seem to indicate that the good or effective principal is simply one who frequently leads his staff.

CHAPTER III

PROCEDURE

In Chapter I an overview of the study was given as to scope, delimitations, and design. In this study a more detailed description is given of the study's setting, selection of respondents, the sample, data collection, testing procedure, and a description of the instruments used.

The design of the study called for (1) the identification of "high innovative" and "low innovative" principals, and (2) descriptions of the leader behavior of these principals from their superintendents, their staff members, and the principals themselves. Utilizing the criteria outlined in Chapter I, the data was derived from two sources: (1) a national inventory of educational innovations conducted by the North Central Association of Colleges and Secondary Schools' Commission on Secondary Schools, and (2) LBDQ-12 descriptions of the principal's behavior by the three reference groups of the selected schools.

The North Central Study

The study, "National Inventory of Secondary School Innovation,"¹ was under the direction of Dr. Gordon Cawelti and was for the general purpose of determining to what extent accredited schools of the association were adopting current innovative practices in curriculum, technology, and organization. In general, the study represented an assessment of what can be referred to as the "installation and institutionalization phases" of change in regionally accredited schools, whether or not these changes were fully implemented and operating, or were being tried only on a limited basis.

Innovation was broadly defined as any practice not often in use in American high schools. An extensive compilation was originally made of those practices commonly cited by educators as being an innovation. From this list 27 were somewhat arbitrarily derived, using the criteria of (1) ease of interpretation, (2) variation in types, and (3) appropriateness.

The survey was held in the fall of 1966 and included in the final analysis responses from 7,237 schools from the

¹See Appendix B for a copy of the instrument.

50 states, the District of Columbia, overseas Dependents' schools, and schools in the territories. The responses represented a return of approximately 72 per cent.

The reports showed varied and uneven adoption rates. The typical accredited high school had adopted an average of six innovative practices in curriculum, technology, or organization within recent years. The tendency was for the larger, more affluent schools to have instituted innovations, with schools in some areas of the nation indicating greater change than others.

Conclusions of the study were:

1. The diffusion rate established empirically by Mort had speeded up considerably in recent years.
2. There was considerable variation among schools and states in the rate of innovation. Cost appeared to be a discouraging factor in many circumstances. (However, other evidence suggested financial limitations can be considerably offset by the kind of commitment to innovations held by the school administrators.)
3. Current innovations may have been motivated more by the "band-wagon" phenomenon than by theories of instruction and learning.
4. The high abandonment rate for innovations indicated the need for careful planning before adoption and careful

attention while in operation.

5. Methods for affecting changes were resulting in highly uneven efforts across the country. Perhaps a continuous inventory and evaluation of the changes will be most beneficial and will spread willingness to innovate to others.

6. As expected, the large, public suburban high schools that spend over \$650 per student annually tended to be the most adaptable institutions. If one of the criteria for quality is innovation, then the data of this study generally supported the view that wealthier schools offer better education. However, the relationship is subject to considerable exception. Some states show schools with lower expenditures have a high rate of innovation.¹

As the North Central study was thorough in its coverage, and since more detailed and comprehensive reports are forthcoming, no further replication of the study was made for this study. Only those data pertaining to Oklahoma and the present study were used.

The Sample

As the North Central study could provide data needed for the study and a ready-made indice of innovations,

¹Anne Stameshkin (ed.), "Innovation Study of Nation's High Schools Reveals Important Changes in Recent Years," North Central Association Today, Special Issue, XI (March, 1967).

permission to use the data and approval of the study was secured from Dr. Cawelti and from Mr. Jake Smart, Assistant State Superintendent in Charge of Instruction (for Oklahoma). Dr. Cawelti provided the author with the 160 questionnaires mailed to Oklahoma principals.

Of the 160 Oklahoma schools that participated, the questionnaires from six were eliminated as they were returns from private and parochial schools. The questionnaires from 154 Oklahoma public secondary schools were included in the present study.

Although the questionnaire listed three general categories of innovation--technology, curriculum, and organization--all three were lumped together to give a general indice of innovativeness. No attempt was made to assess the success or quality of these practices. Also, no distinction was made as to whether or not these innovations were fully implemented and operating, or being tried only on a limited basis.

No distinction was made as to the year the innovation was first initiated, other than it must have been during the tenure of the responding principal. In cases where the principal's tenure began since 1958, only those innovations initiated during his present tenure in office

were counted.

Utilizing the criteria for inclusion as previously given--number of innovations, size of staff, tenure, etc.--the population was delimited to 17 "high innovative" principals and 19 "low innovative" principals. All 36 principals were invited to participate in the study.

Collection of Data

The second phase of the investigation was to secure descriptions of the leader behavior of the principals identified as either "high" or "low" innovative. Accordingly, permission was obtained from Dr. Ralph M. Stogdill and The Ohio State University to use the LBDQ-12 in the study (Appendix C). Next, a letter was sent to each of the principals selected (Appendix D) and to his superintendent (Appendix E), advising them of the nature of the study and inviting them to participate.

Accompanying the original invitation was a letter from the officers of the Oklahoma Association of Secondary School Principals and Dr. Glenn R. Snider, Professor of Education at Oklahoma University and advisor to the OASSP, urging their cooperation (Appendix F). Included also were: (1) a detailed description of the project, (2) a form indicating

their willingness to participate, and (3) a name sheet on which the principals were asked to list the names of at least ten members of their staff who had been directly associated with them for at least three years prior to the study (Appendix E, H).

Of the original group of 36 principals invited, 30 agreed, as did their superintendents, to participate in the study. Although no attempt was made to balance the two groups, the results showed equal groupings of 15 "high innovative" principals and 15 "low innovative" principals. Appendix A lists respondent principals by schools.¹ Appendix I gives a breakdown of the schools as to number of innovations, size of school, etc.

"High innovative" schools were, with three notable exceptions, large city and suburban schools with a per pupil expenditure of \$350+. As might be expected, the "low innovative" schools were, with three exceptions, medium or small town schools. It should be noted that only three schools, all low innovative and small, listed per pupil expenditures in excess of \$350+. This was contrary

¹Appendix A lists respondent schools in alphabetical order and is in no way indicative of any sort of rank ordering related to innovativeness.

to what might be expected, as it is generally assumed, but not supported by research, that size and per pupil expenditure is indicative of high quality education and a high number of innovations. Research utilizing size, type of community, per pupil expenditures, and related variables as determinants of quality education have, for the most part, been inconclusive. They were, therefore, not considered in this investigation.

Previous studies utilizing the LBDQ-12 indicated that average scores computed on the basis of four to seven descriptions furnished reasonably stable scores that could be used as indices of the leader's behavior. In view of this, each principal was asked to list a minimum of ten staff members, or if he preferred, he could send a complete list of staff members indicating those who met the criteria of tenure.

In cases where more than seven names were listed, seven were selected at random. Letters were sent to each of these staff members asking them to participate in the study. It was carefully pointed out to participants that no individual scores would be reported--only the average scores computed from the staff member questionnaires would be used. Furthermore, it was explained, the principal

would not be able to attribute even the mean scores to the staff members participating as two of the seven questionnaires returned would be discarded at random. (Appendix J.)

The anonymity of the superintendent was also provided for. The results of the superintendent's description of his principal's behavior were not made known to the principal.

Scores computed from any of the descriptions of the principal were not reported in a manner in which any individual respondent could be identified. Furthermore, the principal was assured that he, and he alone, would be informed in a personal communication from the writer the results of how his staff members perceived his behavior. He was assured that the researcher was not interested in the scores of a particular person, but in the relationship among the scores for the sample as a whole. No mention was made of the dimensions being measured. It was indicated only that the author was seeking information on the leader behavior of the secondary school principal.

The questionnaires were mailed directly to each respondent for completion. No change was made in the format of the LBDQ-12 with the exception of labeling-- according to respondent--"Superintendent's Description,"

"Staff Member's Description," and "Principal's Self-Description." Also, the directions were changed to read "your principal" or "how you perceive you behave" according to the respondent. The principal being described was identified by name and school on each questionnaire. The respondents were identified by an assigned code number. The description of the leader behavior of each principal was therefore based upon questionnaires answered by (1) the principal himself, (2) his superintendent, and (3) five of his staff members.

All of the respondent principals (30) and superintendents (30) returned usable questionnaires. The returns showed that of the seven staff members invited to participate in the study, three schools had five completed questionnaires, nine schools had six completed questionnaires, and eighteen schools had seven staff members complete and return the questionnaires. A total of 195 staff member questionnaires were returned. It should be noted that at least five--the required number--staff members returned questionnaires (n=150). The total number of questionnaires utilized in the study was 210.

When the answer sheets were returned they were hand scored, re-checked for accuracy, and tabulated. Each

principal was assigned his own score for each dimension. On each dimension the score used for the staff's description of the principal was the average (mean) of the scores by which the five staff respondents described him. The superintendent's description of the principal on each dimension was similarly recorded. These mean scores by the teachers and the score by the superintendent were referred to as ascribed scores assigned to the principal as an index of his leader behavior. These scores, together with the principal's "self" scores, constituted the basic data upon which further analyses were based.

Description of the Instrument¹

The Leader Behavior Description Questionnaire--Form 12 was developed for use in obtaining descriptions of a supervisor by the group members whom he supervises. It can be used to describe the behavior of the leader, or leaders, in any type of group or organization, provided the followers have had an opportunity to observe the leader in action as a leader of their group (Appendix K).

The LBDQ-12 is a Likert-type instrument of 100 behavioral items responded to by observers on a five-point

¹Taken from Stogdill, Manual for the Leader Behavior Description Questionnaire--Form XII, pp. 1-14.

scale. The observer is instructed to describe, as he knows it, a leader's behavior by responding to each of the 100 items: "He always (often, occasionally, seldom, never) acts as described by the item." Most items are scored: A-5, B-4, C-3, D-2, E-1. Twenty items--numbers 6, 12, 16, 26, 36, 42, 46, 53, 56, 57, 61, 62, 65, 66, 68, 71, 87, 91, 92 and 97--are scored in the reverse direction as follows: A-1, B-2, C-3, D-4, E-5.

The scores for the 100 items of the instrument were collapsed into 12 subscales consisting of from 5 to 10 of the items.

Definition of the Subscales

Each subscale is composed of either five or ten items. A subscale is necessarily defined by its component items, and represents a rather complex pattern of behaviors. Brief definitions of the subscales are listed below:

1. Representation - speaks and acts as the representative of the group. (5 items)
2. Demand Reconciliation - reconciles conflicting demands and reduces disorder to system. (5 items)
3. Tolerance of Uncertainty - is able to tolerate uncertainty and postponement without anxiety or upset. (10 items)
4. Persuasiveness - uses persuasion and argument effectively; exhibits strong convictions. (10 items)

5. Initiation of Structure - clearly defines own role, and lets followers know what is expected. (10 items)
6. Tolerance of Freedom - allows followers scope for initiative, decision, and action. (10 items)
7. Role Assumption - actively exercises the leadership role rather than surrendering leadership to others. (10 items)
8. Consideration - regards the comfort, well being, status, and contributions of followers. (10 items)
9. Production Emphasis - applies pressure for productive output. (10 items)
10. Predictive Accuracy - exhibits foresight and ability to predict outcomes accurately. (5 items)
11. Integration - maintains a closely knit organization; resolves inter-member conflicts. (5 items)
12. Superior Orientation - maintains cordial relations with superiors; has influence with them; is striving for higher status. (10 items)

The assignment of items to different subscales is indicated in the Record Sheet (Appendix L). The sum of the items for each subscale constituted the score for that particular dimension.

Reliability of the Subscales

The reliability of the subscales was determined by a modified Kuder-Richardson formula. The modification consists in the fact that each item was correlated with the remainder of the items in its subscale rather than with the subscale score including the item. This procedure yields a conservative estimate of subscale reliability. The reliability coefficients for several studies are shown in Table 4.

TABLE 4

RELIABILITY COEFFICIENTS (Modified Kuder-Richardson)

Subscale	Army Division	Highway Patrol	Aircraft Executives	Ministers	Community Leaders	Corporation Presidents	Labor Presidents	College Presidents	Senators
1. Representation	.82	.85	.74	.55	.59	.54	.70	.66	.80
2. Demand Reconciliation			.73	.77	.58	.59	.81		.81
3. Tolerance Uncertainty	.58	.66	.82	.84	.85	.79	.82	.80	.83
4. Persuasiveness	.84	.85	.84	.77	.79	.69	.80	.76	.82
5. Initiating Structure	.79	.75	.78	.70	.72	.77	.78	.80	.72
6. Tolerance Freedom	.81	.79	.86	.75	.86	.84	.58	.73	.64
7. Role Assumption	.85	.84	.84	.75	.83	.57	.86	.75	.65
8. Consideration	.76	.87	.74	.85	.77	.78	.83	.76	.85
9. Production Emphasis	.70	.79	.79	.59	.79	.71	.65	.74	.38
10. Predictive Accuracy	.76	.82	.91	.83	.62	.84	.87		
11. Integration	.73	.79							
12. Superior Orientation	.64	.75	.81			.66		.60	

CHAPTER IV

FINDINGS

In presenting the findings of this study of thirty selected "high" and "low" innovative principals, the researcher was guided by two closely related purposes. First, a description of the results in terms of the perceptions of the principal's behavior as viewed by the staff members, the superintendents, and the principals was attempted. Second, an analysis of the differences among the various group descriptions was attempted in order to determine just how the perceptions of each group differed from the others. As such, the analysis presented here is concerned with both description and inference.

Differences Between "High" and "Low"

Innovators Within Each Group

The first part of the investigation was designed to test the first hypothesis of the study--that there are significant differences in the leader behavior, as perceived by their work-groups and as measured by mean ratings on the

LBDQ-12, between "high innovative" and "low innovative" principals. More specifically, the findings are an attempt to answer the questions raised by the first five questions of the study. These were:

1. Is there a difference in the leader behavior of "high innovative" and "low innovative" principals?

2. Which group is perceived to be the more effective?

3. What type(s) of leadership best describes "high innovative" and "low innovative" principals?

4. What specific leader behaviors are most frequently exhibited by "high innovative" and "low innovative" principals?

5. Are the two aspects of leadership (System and Person) compatible--do principals perform well in both areas?

To provide "staff member" scores, five staff members from each of the 30 respondent schools described their principal on the 12 dimensions of the LBDQ. These five individual scores were averaged to provide a "staff" score from each school. These mean scores from the appropriate 15 schools were averaged to provide an index score descriptive of "high innovative" principals on each of the 12 dimensions of the LBDQ. Similarly, the appropriate 15 mean scores were

averaged to provide index scores descriptive of the "low innovative" principals.

"Self-description" scores are the mean of the appropriate scores of the 15 "high innovative" and the 15 "low innovative" principals. The superintendents' scores were derived in a similar manner.

Frequency of Leader Behavior

In describing the leader behavior of their principals on the LBDQ-12, the describers were asked to rate each item according to a schema of 5-always, 4-often, 3-occasionally, 2-seldom, and 1-never. Accordingly, there would be maximum scores of rating times number of items. In no instance in the individual ratings of any of the groups was the maximum or minimum score recorded. In mean scores for all group descriptions for all items (all dimension scores changed to standard scores), there was a range of from 31.86 to 42.13. Thus, according to "frequency" of behavior, all principals were described as either "occasionally" or "often" exhibiting the behavior indicated. For descriptive purpose, all mean scores of 40.00 and above will be indicative of the category "often." Scores falling in the 30.00 to 39.00 range, while describing behavior that is "occasionally" exhibited in the instrument used, were arbitrarily divided

into two sub-categories. Mean scores of 35.00 and below were referred to as "occasionally" and scores of 36.00 to 39.00 were referred to as "less often," referring to behavior that is exhibited by the principals more often than "occasionally" but less often than "often."

Type and Effectiveness of Behavior

Principal "effectiveness" in this study has been defined as high ascribed scores on the 12 dimensions of the LBDQ. "Type" of leadership has been described as "System Oriented," "Person Oriented," and "Transactional," as indicated by frequency (mean scores) of behavior in the appropriate dimensions.

As there are no accepted norms for the dimensions of the LBDQ-12, mean scores of 40.00 or more, indicating the behavior is "often" exhibited, were used as indices of principal "effectiveness." It should be noted that the principals may be "effective" in from 1 to 12 dimensions of leader behavior as indicated by their ascribed scores. Note also that none of the groups of principals received scores indicative of "seldom" or "never" exhibiting the described behaviors. Therefore, none of the groups can be described as "ineffective," only as "less effective" than others.

Utilizing Anderson and Brown's theoretical model of leader behavior as previously explained, each type of principal as described by each group was assigned to the descriptive category--System, Transactional, Person--according to frequency of behavior as indicated by mean scores on the appropriate dimensions. It is noted that this was a "theoretical" discussion at best, since no factor analysis was conducted for this study. Only mean scores as they fit into the general schema were used.

"t" test for the Difference Between Means

To test the first hypothesis of the significance of the difference between the means of each group, the "t" ratio as described by Walker and Lev¹ was utilized. Within each of the three work-groups the differences between the descriptions of the "high" and "low" innovative principals, on each separate dimension, were tested. This entailed 12 separate "t" tests for each group--a total of 36 separate tests of significance.²

¹Helen M. Walker and Joseph Lev, Statistical Inference (Chicago: Holt, Rinehart and Winston), 1953, pp. 155-57.

²See Appendix M for a description of the formula.

Staff Member Descriptions

Results of the analysis of the staff member descriptions showed the "high innovative" principals to have mean scores that were higher than were the means of the "low innovative" principals on eleven of the twelve dimensions of the LBDQ. "Low innovative" principals had a higher mean score on the one dimension of Tolerance of Uncertainty. However, this finding was not significant at the .05 level of confidence.

On two of the dimensions--Production Emphasis ($t=2.71$) and Persuasiveness ($t=2.11$) the differences were significant at the .05 level. Therefore the hypothesis of no difference between the staff member descriptions could not be accepted on these two dimensions. These data demonstrated that the "high innovative" principals were rated significantly higher by their staff members than were the "low innovative" principals on the following dimensions of the LBDQ-12:

1. Production Emphasis--applies pressure for productive output. (Questionnaire items numbered 8, 18, 28, 38, 48, 58, 68, 78, 88, and 98.)
2. Persuasiveness--uses persuasion and argument effectively; exhibits strong convictions. (Questionnaire

items numbered 3, 13, 23, 33, 43, 53, 63, 73, 83, and 93.)

Examination of the mean scores showed that while staff members described "high innovative" principals as significantly higher on the dimension of Production Emphasis, they described both types of principals as only "occasionally" demonstrating this type of behavior. Staff members described "high innovative" principals as "often" and "low innovative" principals as "less often" exhibiting behavior indicative of Persuasiveness.

Mean scores further demonstrated that staff members were in close agreement in their descriptions of the two types of principals on four of the dimensions of behavior. They saw both types of principals as "often" exhibiting behavior indicative of the following dimensions:

1. Initiating Structure--clearly defines own role, and lets followers know what is expected. (Questionnaire items numbered 4, 14, 24, 34, 44, 54, 64, 74, 84, and 94.)

2. Role Assumption--actively exercises the leadership role rather than surrendering leadership to others. (Questionnaire items numbered 6, 16, 26, 36, 46, 56, 66, 76, 86, and 96.)

3. Demand Reconciliation--reconciles conflicting demands and reduces disorder to system. (Questionnaire

items numbered 51, 61, 71, 81, and 91.)

4. Tolerance of Freedom--allows followers scope for initiative, decision, and action. (Questionnaire items numbered 5, 15, 25, 35, 45, 55, 65, 75, 85, and 95.)

Staff members see both groups of principals as "less often" exhibiting behavior indicative of:

1. Predictive Accuracy--exhibits foresight and ability to predict outcomes accurately. (Questionnaire items numbered 9, 29, 49, 59, and 89.)

2. Tolerance of Uncertainty--is able to tolerate uncertainty and postponement without anxiety or upset. (Questionnaire items numbered 2, 12, 22, 32, 42, 52, 62, 72, 82, and 92.)

"High innovative" principals were described as "often" and "low innovative" principals as "less often" exhibiting behavior indicative of:

1. Representation--speaks and acts as the representative of the group. (Questionnaire items numbered 1, 11, 21, 31, and 41.)

2. Superior Orientation--maintains cordial relations with superiors; has influence with them; is striving for higher status. (Questionnaire items numbered 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100.)

3. Integration--maintains a closely knit organization; resolves inter-member conflicts. (Questionnaire items numbered 19, 39, 69, 79, and 99.)

4. Consideration--regards the comfort, well being, status, and contributions of followers. (Questionnaire items numbered 7, 17, 27, 37, 47, 57, 67, 77, 87, and 97.)

Type and Effectiveness

Staff members rated "high innovative" principals as more effective leaders than "low innovative" principals in the dimensions of Persuasiveness, Superior Orientation, Integration, and Consideration. "High innovative" principals were described as being slightly higher in "Person Oriented" leadership, but they were almost equally effective in the "System Oriented" type, which indicated they would be described as exhibiting a mixed or "Transactional" type of leadership.

"Low innovative" principals were described by their staff members to be effective leaders in the dimensions of Initiating Structure, Role Assumption, Demand Reconciliation, and Tolerance of Freedom. Although they had slightly higher scores in the dimensions of "Person Oriented" leadership, they were described as exhibiting a "Transactional" type of leadership.

Findings showed both groups to utilize a mixed, or Transactional, type of leadership that tended to balance the needs and goals of the institution with those of the individuals within the group. This indicates that staff members perceived the two types of leadership to be compatible; they saw "high innovative" principals to be effective in both.

The findings of the present study were in general agreement with those of Jacobs (Chapter II, pp. 37-9). Both studies ascribed to "high innovative" principals higher overall mean scores than "low innovative" principals. Both studies pointed out that staff members saw a significant difference in the Persuasiveness of the two groups of principals. The findings were in disagreement in that the present study described "high innovative" principals to be rated as significantly higher than the "low innovative" principals in the dimension of Production Emphasis and lower (but not significantly) in Tolerance of Uncertainty. This was in direct opposition to Jacobs' findings.

In contrast to Brown's description of the principal as a very tolerant fellow with little upward drive or productivity push (Chapter II, p. 45), the present study defined the "high innovative" principal as being a tolerant,

considerate person who exerted a high degree of influence with his superiors and who was a persuasive, dedicated leader, effective in reconciling conflicting role demands and in initiating change.

The findings would seem to be consistent with those of Cunningham (Chapter I, p. 4). Staff members perceived the role of the "high innovative" principals to have a "change-agent" aspect. They perceived effective leadership in the dimension of Persuasiveness to be closely related to change and innovation.

Consistent with the findings of Holdaway and Seger (Chapter II, pp. 23-4), staff members viewed the principal as a key figure in the process of change. As staff members perceived it, the most significant factor in encouraging curricular change was the behavior that the principal employs in his relationship with the other staff members. Table 5 gives results of the Staff Member Descriptions.

TABLE 5

LEADER BEHAVIOR QUESTIONNAIRE RESULTS OF STAFF MEMBER
DESCRIPTIONS OF HIGH AND LOW INNOVATIVE PRINCIPALS

Dimension	High Innovative Principals		Low Innovative Principals		t Ratio*
	Mean	S.D.	Mean	S.D.	
1. Production Emphasis	34.60	2.51	31.86	3.08	2.71**
2. Initiating Structure	40.82	2.33	40.30	2.98	.54
3. Representation	20.48	5.64	19.46	5.42	.51
4. Role Assumption	40.72	2.21	39.90	3.42	.80
5. Persuasiveness	39.96	3.30	37.42	3.33	2.11**
6. Superior Orientation	40.01	1.97	38.40	3.18	1.68
7. Predictive Accuracy	19.72	1.02	18.92	1.56	1.42
8. Integration	20.12	1.32	19.62	1.61	.94
9. Demand Reconciliation	20.74	1.44	19.76	1.98	1.55
10. Consideration	40.82	1.81	38.68	3.91	1.03
11. Tolerance of Freedom	42.13	2.87	41.38	2.75	.74
12. Tolerance of Uncertainty	36.15	5.03	37.40	4.30	.73

*To be significant at the .05 level of confidence, a "t" ratio has to be at least 2.05.

**Significant at .05

Superintendents' Descriptions

Results of the analysis of the superintendents' descriptions showed findings almost opposite those of the staff members. Superintendents described "low innovative" principals as higher on eleven of the twelve dimensions of the LBDQ. Only on the dimension of Representation did the "high innovative" principals have a higher ascribed score.

Superintendents described the "low innovative" principals significantly higher in six of the dimensions on leader behavior. They were:

1. Production Emphasis ($t=2.60, p<.05$)
2. Role Assumption ($t=2.08, p<.05$)
3. Persuasiveness ($t=2.32, p<.05$)
4. Superior Orientation ($t=2.77, p<.05$)
5. Predictive Accuracy ($t=2.43, p<.05$)
6. Demand Reconciliation ($t=2.48, p<.05$)

The hypothesis of no difference in the superintendents' group descriptions of "high" and "low" innovative principals therefore was not accepted on these six dimensions.

Closer examination of the data showed the superintendents to be in agreement in their descriptions of both types of principals in the area of Initiating Structure.

They described both "high" and "low" innovative principals as "often" exhibiting this type of behavior.

The superintendents agreed that both types of principals "less often" exhibited behavior indicative of Representation and Consideration. They also described both types of principals as "occasionally" exhibiting leader behavior indicative of Tolerance of Uncertainty.

"Low innovative" principals were described by their superintendents as "often"--and "high innovative" principals as "less often"--exhibiting behavior indicative of Role Assumption, Superior Orientation, Integration, and Tolerance of Freedom. They described "low innovative" principals as "often" and "high innovative" principals as "occasionally" on Demand Reconciliation.

Superintendents described "low innovators" as "less often"--and "high innovators" as "occasionally"--exhibiting behavior indicative of Production Emphasis, Persuasion, Predictive Accuracy, and Tolerance of Uncertainty.

Type and Effectiveness

Superintendents described "high innovative" principals as "effective" leaders in only one area--Initiating Structure. The ascribed mean scores indicated that the

superintendents tended to describe "high innovative" principals as exhibiting a "Transactional" type of leadership although they described them as slightly higher in "System-Oriented" leadership.

"Low innovative" principals were described by their superintendents as being "effective" leaders in the areas of Initiating Structure, Role Assumption, Superior Orientation, Integration, Demand Reconciliation, and Tolerance of Freedom. They were seen as being more effective than the "high innovative" principals in the dimensions of Role Assumption, Superior Orientation, Integration, Demand Reconciliation, and Tolerance of Freedom. They ascribed to them almost equal behavior indicative of "System" and "Person" oriented leadership, placing them also in the "Transactional" category. Superintendents saw no incompatibility in the two types of leadership; they perceived the "low innovative" principals to be effective in both.

Findings of the study as they relate to the superintendents' descriptions indicated that, as a group, they did not associate the leadership of the principal with the amount of change or innovation in his school. One might even conclude that they felt "effective" leadership in certain dimensions of behavior might be detrimental to

change. It would seem that superintendents feel that principals can be effective leaders without initiating much change in their schools.

These findings indicate that superintendents do not see that the behavior of the principals has made too much difference in the performance of the followers. They do not see the role of the principal as having a "change agent" expectation. Nor do they see organizational and curriculum change as indicative of leadership effectiveness. The superintendents seem to feel that maintenance of organizational stability is clearly more important than change or innovation. Table 6 shows the results of the Superintendents' Descriptions.

Principals' Self-Descriptions

Results of the analysis of the principals' self-descriptions showed findings different from both the staff and the superintendents' descriptions. "High innovative" principals described themselves higher on six dimensions of leader behavior--Role Assumption, Persuasiveness, Predictive Accuracy, Integration, Consideration, and Tolerance of Freedom. "Low innovative" principals ascribed to themselves higher mean scores on five dimensions--Production Emphasis,

TABLE 6

LEADER BEHAVIOR QUESTIONNAIRE RESULTS OF SUPERINTENDENTS
DESCRIPTIONS OF HIGH AND LOW INNOVATIVE PRINCIPALS

Dimension	High Innovative Principals		Low Innovative Principals		t Ratio
	Mean	S.D.	Mean	S.D.	
1. Production Emphasis	32.23	4.68	36.00	3.25	2.60*
2. Initiating Structure	39.93	4.68	41.86	3.94	1.24
3. Representation	19.26	1.87	19.20	2.48	.07
4. Role Assumption	37.80	5.33	41.53	4.59	2.08*
5. Persuasiveness	33.09	7.04	37.73	3.49	2.32*
6. Superior Orientation	36.46	1.76	40.93	3.06	2.77*
7. Predictive Accuracy	17.26	3.01	19.23	1.11	2.43*
8. Integration	19.20	3.03	20.33	1.29	1.34
9. Demand Reconciliation	17.00	3.83	19.73	2.05	2.48*
10. Consideration	37.20	4.78	39.13	3.99	1.22
11. Tolerance of Freedom	38.46	1.78	40.06	3.81	.92
12. Tolerance of Uncertainty	34.80	3.89	35.73	3.55	.67
*Significant at .05.					

Representation, Superior Orientation, Demand Reconciliation, and Tolerance of Uncertainty. On the twelfth dimension--Initiating Structure--the two groups described themselves as exactly the same.

In only one dimension was there a significant difference between the self-descriptions of "high" and "low" innovative principals. "Low innovative" principals saw themselves as significantly higher in Superior Orientation ($t=3.00$, $p<.01$). The hypothesis of no significant difference between principals' self-descriptions was tenable in all of the dimensions of the LBDQ-12, with the exception of the one significant category of Superior Orientation. The hypothesis of no difference was not acceptable for this dimension.

The findings demonstrated that the principals--regardless of type--showed a remarkable similarity in their self-descriptions. They both described themselves as "often" exhibiting behavior indicative of Initiating Structure, Integration, and Tolerance of Freedom.

They saw themselves as "less often" exhibiting behavior best described by the dimensions of Representation, Role Assumption, Persuasiveness, Predictive Accuracy, and Demand Reconciliation. The two types of principals agreed

that they "occasionally" exhibited behavior that could be typed as Production Emphasis and Tolerance of Uncertainty.

The only disagreement between the self-descriptions were in the categories of Superior Orientation and Consideration. "Low innovative" principals described themselves as "often" exhibiting Superior Orientation, and "high innovative" principals described themselves as "less often" demonstrating this type of behavior. This finding indicated that the "low innovative" principals perceived themselves as being more effective in their relations with their superintendents. In the Consideration dimension, "high innovative" principals described themselves as "often" engaging in this type of behavior, whereas "low innovative" principals described themselves as "less often" doing so.

Type and Effectiveness

"High innovative" principals described themselves as "effective" leaders in the dimensions of Initiating Structure, Integration, Consideration, and Tolerance of Freedom. Mean scores placed them in the "Transactional" category as to type of leadership although it appeared that they perceived themselves as "Person Oriented."

"Low innovative" principals described themselves as "effective" leaders in Initiating Structure, Superior

Orientation, Integration, and Tolerance of Freedom. Mean scores on all of the dimensions indicated that the "low innovative" principals tended to see themselves as slightly more "Person Oriented." However, mean scores have a definite tendency to cluster in the middle area of the model, classifying them as exhibiting "Transactional" leadership.

Findings of the study as they related to the self-descriptions indicated that, as a group, the principals perceived little difference in the behavior of "high innovative" principals and "low innovative" principals. Both groups saw themselves as balancing the needs of the organization with those of the group members. However, the findings seemed to indicate that the two groups differed drastically in their perceptions of the relationship of their leader behavior to change or innovation. Table 7 gives the results of the Principals' Self-Descriptions.

Differences Between Group Descriptions

A two-way analysis of variance for innovation as a function of work-group descriptions was conducted upon the three different descriptions of the principal's leader behavior. Each of the 12 dimensions of the LBDQ was analyzed separately utilizing a 2x3 factorial design. Level I (columns) consisted of the descriptions by work-group and

TABLE 7

LEADER BEHAVIOR QUESTIONNAIRE RESULTS OF SELF DESCRIPTIONS
OF HIGH AND LOW INNOVATIVE PRINCIPALS

Dimension	High Innovative Principals		Low Innovative Principals		t Ratio
	Mean	S.D.	Mean	S.D.	
1. Production Emphasis	34.93	4.40	35.26	1.16	.22
2. Initiating Structure	39.46	4.42	39.46	2.56	.00
3. Representation	19.46	2.10	19.53	2.06	.09
4. Role Assumption	38.00	3.59	37.53	4.89	.30
5. Persuasiveness	36.66	4.24	35.46	2.80	.86
6. Superior Orientation	36.33	2.22	39.46	3.44	3.00*
7. Predictive Accuracy	19.06	2.15	18.93	1.33	.20
8. Integration	20.26	2.19	19.73	2.01	.69
9. Demand Reconciliation	17.93	1.67	18.40	2.53	.61
10. Consideration	41.40	4.06	39.20	5.28	1.30
11. Tolerance of Freedom	40.26	3.43	39.86	4.10	.29
12. Tolerance of Uncertainty	34.26	4.63	34.33	4.01	.04

*Significant at .01.

tests for differences between "high" and "low" innovators across groups of describers. Level II (rows) refers to the type of innovator being described and tests for differences between groups of describers regardless of type of innovator.

The overall analysis of variance was designed to test the second hypothesis of the study. This hypothesized significant differences among the different work-groups in their descriptions of the leader behavior of "high" and "low" innovative principals.

Findings inferred that there were no significant differences among the perceptions of the three work-groups on the following dimensions of leader behavior:

1. Initiating Structure
2. Representation
3. Superior Orientation
4. Integration
5. Consideration
6. Tolerance of Freedom
7. Tolerance of Uncertainty

The findings were interpreted to infer that the three work-groups were in general agreement in their descriptions of the leader behavior of the principals on the seven dimensions listed. It was noted that the most productive

principals in the study were rated high by all groups on Initiating Structure and were rated high by their staff members on Consideration. This finding was different from that of Halpin; namely, educational administrators tended to be rated high on Consideration but not on Initiating Structure, which is why he felt they were not as productive as they could be (Chapter II, p. 31.) Tables 8 through 14 give the results on each of the seven dimensions.

TABLE 8

INITIATING STRUCTURE

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F Ratio	P
Type of Innovator (rows)	14.56	1	14.56	1.12	
Work-Groups (columns)	21.09	2	10.54	.82	
Interaction (c x r)	52.00	2	26.00	2.00	
Within (error)	1090.44	84	12.98		
Total d.f. (N-1)		89			

F ratio required for significance with 1 and 80 df-.05=3.96, .01=6.96, with 2 and 80 df, .05=3.11, .01=4.88.

TABLE 9

REPRESENTATION

Source	s.s.	df	m.s.	F	P
Rows	2.57	1	2.57	.69	
Columns	8.43	2	4.21	1.13	
Interaction	5.2	2	2.60	.70	
Error	311.72	84	3.71		

TABLE 10

SUPERIOR ORIENTATION

Source	s.s.	df	m.s.	F	P
Rows	89.60	1	89.60	2.51	
Columns	25.98	2	12.99	.36	
Interaction	153.24	2	76.62	2.14	
Error	2997.86	84	35.68		

TABLE 11

INTEGRATION

Source	s.s.	df	m.s.	F	P
Rows	.03	1	.03	.0075	
Columns	.82	2	.41	.1025	
Interaction	13.56	2	6.78	1.69	
Error	336.7	84	4.00		

TABLE 12

CONSIDERATION

Source	s.s.	df	m.s.	F	P
Rows	14.56	1	14.56	.81	
Columns	73.67	2	36.83	2.04	
Interaction	68.87	2	34.43	1.91	
Error	1509.81	84	17.97		

TABLE 13

TOLERANCE OF FREEDOM

Source	s.s.	df	m.s.	F	P
Rows	.51	1	.51	.02	
Columns	97.24	2	48.62	2.50	
Interaction	24.07	2	12.03	.61	
Error	1630.47	84	19.41		

TABLE 14

TOLERANCE OF UNCERTAINTY

Source	s.s.	df	m.s.	F	P
Rows	12.62	1	12.62	.69	
Columns	93.48	2	46.74	2.56	
Interaction	5.61	2	2.80	.15	
Error	1528.78	84	18.19		

Significant differences and/or interactions among work-group descriptions were found in the following dimensions:

1. Production Emphasis
2. Role Assumption
3. Persuasiveness
4. Predictive Accuracy
5. Demand Reconciliation

In instances where the F ratio indicated significant main effects, the results were further analyzed to locate the source of the variance. As indicated, the methods of analysis in these instances were ANOVA test for simple effects and contrasts (comparisons).¹

Production Emphasis

An analysis of the findings indicated that there were no significant differences among the three work-groups in this dimension. However, a significant interaction was found ($F=5.33$, $p<.01$). Simple effects analysis showed a significant difference among group descriptions of "low innovative" principals ($F=5.39$, $p<.01$). No significant

¹B. J. Winer, "Design and Analysis of Factorial Experiments," Statistical Principles in Experimental Design (New York: McGraw-Hill Book Company, Inc., 1962), pp. 140-227.
For a detailed description of ANOVA see Appendix N.

differences were found among the work-groups in their descriptions of "high innovative" principals.

Comparison analysis between all group descriptions of "low innovative" principals showed a significant difference between the principals' self-descriptions and corresponding descriptions by the staff members ($F=3.20$, $p<.05$). A significant difference was also found between the superintendents and the staff members in their descriptions of the "low innovative" principals ($F=4.73$, $p<.05$). There was no significant difference between the self-descriptions of the "low innovative" principals and corresponding descriptions by their superintendents.

These findings indicated that "low innovative" principals described themselves as higher in Production Emphasis than did their staff members. The superintendents also described the "low innovative" principals considerably higher in Production Emphasis than did the staff members.

The findings also indicated that "low innovative" principals did not realistically perceive their behavior in this area. They would do well to re-assess their staff perceptions of their behavior as it is related to Production Emphasis. The findings also indicated that the superintendents lacked a realistic perception of how their principals

performed in this area. This finding was consistent with that of Halpin--that administrators tend to differentiate their role behavior when dealing with superiors and subordinates (Chapter II, p. 32.). "Low innovative" principals tended to emphasize Production Emphasis to a greater degree in their relations with the superintendents than they did with their staff members. Table 15 gives the findings on Production Emphasis.

TABLE 15

PRODUCTION EMPHASIS

Source	s.s.	df	m.s.	F	P
Type of Innovator (rows)	2.77	1	2.77	.20	
Work-groups (columns)	52.39	2	26.19	1.93	
Interaction (c x r)	144.23	2	72.11	5.33*	.01
Within (error)	1135.98	84	13.52		

Total df (N-1) = 89

*F ratio required for significance with 1 and 80 df, $p < .05 = 3.96$; $p < .01 = 6.96$. With 2 and 80 df, $p < .05 = 3.11$; $p < .01 = 4.88$.

Role Assumption

An analysis of the findings showed neither the main effects nor the interaction to be significant at the .05 level. However, since it had previously been hypothesized that "no difference" existed between the work-groups, an a priori reason for further analysis was held to be tenable. In addition, for a posteriori reasons, a comparison was made by a contrast analysis and simple effect because the F ratio approached significance ($F=3.11$, $p<.05$).

Although the simple effect analysis showed no overall difference, contrasts showed a significant difference between the self-descriptions of the "low innovative" principals and the descriptions of their superintendents ($F=7.02$, $p<.01$). These findings showed that "low innovative" principals described themselves significantly lower than did their superintendents. Superintendents perceived "low innovative" principals to assume and exercise the leadership aspects of their role to a greater extent than the principals saw themselves. Table 16 gives the results of ANOVA of Role Assumption.

TABLE 16

ROLE ASSUMPTION

Source	s.s.	df	m.s.	F	P
Rows	15.05	1	15.05	.88	
Columns	105.14	2	52.57	3.08*	
Interaction	96.04	2	48.02	2.81	
Error	1435.48	84	17.08		

*Approaches significance at .05 level. $F=3.11$.

Persuasiveness

Findings showed a significant difference among work-groups in their descriptions of the principals ($F=3.81$, $p<.05$). The interaction among the groups was also significant ($F=4.05$, $p<.05$). Simple effects showed a significant difference among the work-groups in their descriptions of "high innovative" principals ($F=6.65$, $p<.01$), but no differences among group descriptions of "low innovative" principals.

Contrast analysis of variances of all "high" groups showed a significant difference between superintendents and staff members in their descriptions of the "high innovative" principals ($F=6.61$, $p<.01$). There were no significant differences between self and superintendents, or between self

and staff descriptions of the "high innovative" principals.

The findings indicated that staff members consistently described "high innovative" principals higher in Persuasiveness than did their superintendents. This provided further evidence of Halpin's finding of role differentiation. "High innovative" principals are more persuasive, exhibit stronger convictions, and inspire more enthusiasm for change and innovation when dealing with their staffs than they do in their dealings with their superintendents. Table 17 gives the results of ANOVA for Persuasiveness.

TABLE 17

PERSUASIVENESS

Source	s.s.	df	m.s.	F	P
Rows	.10	1	.10	.0053	
Columns	143.44	2	71.72	3.81	.05
Interaction	152.47	2	76.23	4.05	.05
Error	1580.97	84	18.82		

Predictive Accuracy

Findings showed a significant interaction ($F=5.02$, $p<.01$). There were no significant differences among work-group descriptions.

A simple effects analysis showed a significant difference among work-groups in their descriptions of "high innovative" principals ($F=7.20$, $p<.01$). There were no significant differences among work-groups in their descriptions of the "low innovative" principals.

Contrasts analysis showed a significant difference between the self-descriptions and the superintendents' descriptions of "high innovative" principals ($F=3.60$, $p<.05$). There was also a significant difference between the superintendents' descriptions and the staff descriptions of "high innovative" principals ($F=6.71$, $p<.01$). There was no significant difference between self descriptions and the staff descriptions of the "high innovative" principals.

It was concluded from the analysis that "high innovative" principals rated themselves considerably higher, as did their staff members, in Predictive Accuracy than did the superintendents. The two groups perceived the "high innovative" principals as exhibiting much more foresight and ability in accurately predicting outcomes than did their superintendents. Table 18 shows the findings of ANOVA on Predictive Accuracy.

TABLE 18

PREDICTIVE ACCURACY

Source	s.s.	df	m.s.	F	P
Rows	3.21	1	3.21	.95	
Columns	16.33	2	8.16	2.42	
Interaction	33.75	2	16.87	5.02	.01
Error	282.91	84	3.36		

Demand Reconciliation

Results of ANOVA for main effects showed a significant difference between work-group descriptions ($F=7.00$, $p<.01$) and a significant interaction ($F=4.64$, $p<.05$). The analysis for simple effects showed a significant difference between groups in their descriptions of the "high innovative" principals ($F=10.04$, $p<.001$). There were no significant differences between groups in their ratings of the "low innovative" principals.

Comparison of groups showed significant differences between self-descriptions and staff descriptions ($F=5.22$, $p<.01$), and between superintendents' descriptions and staff member descriptions ($F=9.27$, $p<.01$) of "high innovative" principals. There was no significant difference between the self-descriptions and the superintendents' descriptions of

"high innovative" principals.

These findings pointed out a very great difference between the work-groups in their descriptions of the "high innovative" principals. Staff members described "high innovative" principals significantly higher on Demand Reconciliation than either superintendents or the principals themselves. The "high innovative" principals described themselves significantly higher in this dimension than did their superintendents.

Staff members described the "high innovative" principals to be effective leaders in the dimension of Demand Reconciliation. They perceived the "high innovative" principals to be more able to reconcile conflicting demands, to better handle complex problems, and to be more adept at reducing disorder to system than did their superintendents or their principals. This finding was further evidence of the differentiation of role behavior on the part of the principal and also the possibility of inaccurate perceptions of his behavior by the superintendent. Table 19 shows the findings on Demand Reconciliation.

TABLE 19

DEMAND RECONCILIATION

Source	s.s.	df	m.s.	F	P
Rows	12.25	1	12.25	2.15	
Columns	79.54	2	39.77	7.00	.01
Interaction	52.72	2	26.36	4.64	.05
Error	477.60	84	5.68		

Summary

The findings of the statistical analyses are as follows:

1. Staff members described "high innovative" principals as higher than "low innovative" principals on all dimensions except Tolerance of Uncertainty.
2. Staff members described "high innovative" principals as significantly higher on the dimensions of Production Emphasis and Persuasiveness. The null hypothesis of no difference in staff descriptions was therefore not tenable.
3. Staff members described "high innovative" principals as "often"--and "low innovative" principals as "less often"--exhibiting behavior indicative of Persuasiveness.

4. Staff members described "high innovators" as significantly higher in Production Emphasis than were "low innovative" principals. However, both types were seen as only "occasionally" exhibiting this type of behavior.

5. Staff members described "high innovative" principals to "often and effectively" exhibit behavior indicative of Initiating Structure, Representation, Role Assumption, Persuasiveness, Superior Orientation, Integration, Demand Reconciliation, Consideration, and Tolerance of Freedom. "High innovative" principals were seen as "less often" exhibiting behavior indicative of Predictive Accuracy and Tolerance of Uncertainty.

6. Staff members described "low innovative" principals to "often and effectively" exhibit behavior indicative of Initiating Structure, Role Assumption, Demand Reconciliation, and Tolerance of Freedom. "Low innovative" principals were described as "less often" exhibiting behavior indicative of Representation, Superior Orientation, Predictive Accuracy, Integration, Consideration, and Tolerance of Uncertainty.

7. Staff members described "high innovative" principals as exhibiting a "Transactional" type of leadership that was more effective than the "Transactional" leadership of the "low innovative" principals in the areas of

Persuasiveness, Superior Orientation, Integration, and Consideration.

8. Superintendents described "low innovative" principals higher on all dimensions except Representation than they did "high innovative" principals.

9. Superintendents described "low innovative" principals as significantly higher on the dimensions of Production Emphasis, Role Assumption, Persuasiveness, Superior Orientation, Predictive Accuracy, and Demand Reconciliation.

10. Superintendents described "low innovative" principals to "often and effectively" exhibit behavior indicative of Initiating Structure, Role Assumption, Superior Orientation, Integration, Demand Reconciliation, and Tolerance of Freedom. "Low innovative" principals were described by their superintendents as "less often" exhibiting behavior indicative of Production Emphasis, Representation, Persuasiveness, Predictive Accuracy, and Consideration. "Low innovative" principals "occasionally" exhibited behavior indicative of Tolerance of Uncertainty.

11. Superintendents described "high innovative" principals to "often and effectively" exhibit behavior indicative of Initiating Structure. "High innovative" principals were described as "less often" exhibiting behavior

indicative of Representation, Role Assumption, Superior Orientation, Integration, Consideration, and Tolerance of Freedom. Only "occasionally" did they engage in behavior indicative of Production Emphasis, Persuasiveness, Predictive Accuracy, Demand Reconciliation, and Tolerance of Uncertainty.

12. Superintendents described "low innovative" principals as exhibiting a "Transactional" type of leadership that was more effective than the "Transactional" leadership of "high innovative" principals in the areas of Role Assumption, Superior Orientation, Integration, Demand Reconciliation, and Tolerance of Freedom.

13. "High innovative" principals described themselves higher than did "low innovative" principals on six dimensions--Role Assumption, Persuasiveness, Predictive Accuracy, Integration, Consideration, and Tolerance of Freedom.

14. "Low innovative" principals described themselves as higher in five dimensions--Production Emphasis, Representation, Superior Orientation, Demand Reconciliation, and Tolerance of Uncertainty.

15. The two groups of principals described themselves exactly the same on Initiating Structure.

16. "Low innovative" principals described themselves significantly higher than did the "high innovative" principals on Superior Orientation.

17. "High innovative" principals described themselves as "often and effectively" exhibiting behavior indicative of Initiating Structure, Integration, Consideration, and Tolerance of Freedom. They "less often" engaged in behavior indicative of Representation, Role Assumption, Persuasiveness, Superior Orientation, Predictive Accuracy, and Demand Reconciliation. Only "occasionally" did they see themselves as engaging in Production Emphasis and Tolerance of Uncertainty.

18. "Low innovative" principals described themselves as "often and effectively" engaging in behavior indicative of Initiating Structure, Superior Orientation, Integration, and Tolerance of Freedom. They "less often" engaged in behavior indicative of Representation, Role Assumption, Persuasiveness, Predictive Accuracy, Demand Reconciliation, and Consideration. They "occasionally" engaged in Production Emphasis and Tolerance of Uncertainty.

19. "High innovative" principals described themselves as engaging in a "Transactional" type of leadership that was slightly Person Oriented. They described themselves as

more effective than "low innovative" principals in the dimension of Consideration.

20. "Low innovative" principals saw themselves as exhibiting "Transactional" leadership that was also slightly more Person Oriented. They saw themselves as more effective than did "high innovative" principals in the dimension of Superior Orientation.

Differences Between Group Descriptions

An analysis of variance for differences among all three work groups showed no significant differences except in the following instances:

1. "Low innovative" principals described themselves as significantly higher in Production Emphasis than did their staff members.

2. Superintendents described the "low innovative" principals as significantly higher in Production Emphasis than did their staff members.

3. "Low innovative" principals described themselves significantly lower than did their superintendents on Role Assumption.

4. Staff members described "high innovative" principals as significantly higher in Persuasiveness than did their superintendents.

5. "High innovative" principals rated themselves as significantly higher in Predictive Accuracy than did their superintendents.

6. Staff members rated "high innovative" principals as significantly higher in Predictive Accuracy than did their superintendents.

7. Staff members described "high innovative" principals as significantly higher in Demand Reconciliation than did their superintendents or the principals themselves.

8. "High innovative" principals described themselves significantly higher in Demand Reconciliation than did their superintendents.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem of this study was to determine the degree to which the leader behavior of selected Oklahoma public secondary school principals, as perceived by their work-groups, was related to the reported number of innovations in their schools. Related problems were to determine the "type" and "effectiveness" of the leadership behaviors exhibited by the respondent principals and the extent to which the different work-groups differed in their descriptions of the principals' behavior.

The data of the study consisted of LBDQ-12 descriptions of the behavior of 15 "high innovative" and 15 "low innovative" Oklahoma secondary school principals by their superintendents, their staff members, and by the principals themselves. The criteria of innovativeness was determined by the number of innovations reported in the North Central Association of Colleges and Secondary Schools' Commission on Secondary Schools study of innovativeness in the nation's

schools. "High innovative" principals were defined as those principals reporting nine or more innovations in their schools. "Low innovative" principals were defined as those principals reporting less than two innovations in their schools.

It was postulated that if leadership is related to innovativeness, "high innovative" principals would exhibit a different kind of behavior, as indicated by work-group descriptions on the twelve dimensions of the LBDQ, than would the "low innovative" principals. "Effectiveness" of leader behavior was defined as high mean scores on the individual dimensions of the LBDQ-12. Accordingly a principal was defined as being "effective" when his work-group described him as "often" engaging in the type of leader behavior indicated.

Type of leadership was determined by the tendency of the mean scores--as described by the different groups--of the ascribed behavior of the respondent principals to cluster in the areas defined as System Oriented, Transactional, and Person Oriented.

Hypotheses of the study were:

H₀₁ There is no significant difference in the leader behavior, as perceived by their work-groups and as measured by mean ratings on the LBDQ-12, between "high innovative"

and "low innovative" principals.

H0₂ There is no significant difference among descriptions of the principals' leader behavior as perceived by the superintendents, the staff members, and by the principals themselves.

Findings

Significant findings of the study are as follows:

1. The null hypothesis of no significant differences within work-group descriptions of the leader behavior of "high" and "low" innovative principals was rejected in the following areas:

a. Staff members described "high innovative" principals significantly higher than "low innovative" principals on the dimensions of Production Emphasis and Persuasiveness.

b. Staff members described "high innovative" principals as exhibiting a Transactional type of leadership that was more effective than the Transactional leadership of "low innovative" principals.

c. Superintendents described "low innovative" principals as significantly higher than "high innovative" principals in the dimensions of Production Emphasis, Role

Assumption, Persuasiveness, Superior Orientation, Predictive Accuracy, and Demand Reconciliation.

d. Superintendents described "low innovative" principals as exhibiting a Transactional type of leadership which was more effective than the Transactional leadership of "high innovative" principals.

e. "Low innovative" principals described themselves significantly higher on Superior Orientation than did the "high innovative" principals.

f. "High innovative" principals described themselves as exhibiting a Transactional type of leadership which was slightly more effective than the Transactional leadership of "low innovative" principals.

2. The null hypothesis of no significant difference among work-group descriptions of the leader behavior of "high" and "low" innovative principals was rejected in the following areas:

a. "Low innovative" principals described themselves as significantly higher in Production Emphasis than did their staff members.

b. Superintendents described the "low innovative" principals as significantly higher in Production Emphasis than did their staff members.

c. "Low innovative" principals described themselves significantly lower than did their superintendents on Role Assumption.

d. Staff members described "high innovative" principals as significantly higher in Persuasiveness than did their superintendents.

e. "High innovative" principals rated themselves as significantly higher in Predictive Accuracy than did their superintendents.

f. Staff members rated "high innovative" principals as significantly higher in Predictive Accuracy than did their superintendents.

g. Staff members described "high innovative" principals as significantly higher in Demand Reconciliation than did their superintendents or the principals themselves.

h. "High innovative" principals described themselves significantly higher in Demand Reconciliation than did their superintendents.

3. The three work-groups perceived no significant differences between "high" and "low" innovative principals as to type of leadership exhibited. They described both groups of principals as exhibiting a mixed or "Transactional" type of leadership. The staff members, the superintendents,

and the principals themselves, saw the two types of leadership--System and Person--to be compatible; some principals performed well in both areas.

Conclusions

The findings of this study supported the following conclusions:

1. "High innovative" principals were perceived by their work-groups to display a different type of leader behavior than did "low innovative" principals.
2. Staff members associated high scores on the different dimensions of the LBDQ-12 with high innovativeness.
3. The persuasiveness of the principal in his relationship with his staff was directly related to change and innovation in his school. Principals who would innovate should be sure they are committed to the type of change desired and become adept in enlisting the aid and enthusiasm of their faculty in the process of change.
4. Production emphasis on the part of the principal was related to change and innovation in the school. However, the push for increased productivity should not be over-emphasized or result in undue pressure on an already over-worked staff. This is particularly true as teachers become

more critical of duties which they regard as not a part of their job.

5. The LBDQ-12 offers an excellent way of helping the principal determine the extent to which his leader behavior, as he views it, differs from the way in which his staff members see him.

6. Superintendents and board members would do well to gather evaluations of the principal's behavior from all relevant reference groups. Perceptions of the principal's behavior from one source tend to be distorted and inaccurate.

7. Principals tended to differentiate their role behavior when dealing with their superintendents and staff members. "High innovative" principals tended to be effective leaders when working with their staffs, but less effective in their dealings with their superintendents. The opposite seemed to be true of "low innovative" principals. The degree to which the superintendent's authoritarian behavior caused this differentiation of behavior is a subject for conjecture.

8. The principal must be regarded as a key figure in the process of change. Staff members seem to be aware of this finding and to view the principalship as a position which should be charged with the responsibility for initiating

change when it is needed.

9. Superintendents seemed to value principals who are administrators rather than leaders. They seemed to place priority on the maintenance task rather than the change responsibility. This conclusion would tend to support the concept of a difference between leadership behavior and administrative behavior.

10. Several different kinds of leadership are essential to the effective functioning of the school. Certain types of leader behavior on the part of the principal can encourage change, and at the same time provide an opportunity for effective administration. In order for the principal to be effective, he must balance the needs of the organization with those of the teachers within his faculty.

11. Debate over the relative merits of a "System" or "Person" Oriented approach to the leadership problem is unwarranted. Staff members accept either form, so long as strength in one form is not cancelled by a disproportionately poor showing in the other. The principal can stress both dimensions when he believes it is worth the effort. The "good" or "effective" principal would seem to be one who frequently leads his staff.

12. The secondary school principal who wishes to encourage innovation in his school would do well to assess his behavior as a leader of his faculty. A very significant factor in encouraging curricular and organizational change is the behavior that the principal employs in his relationship with his superintendent and his staff members.

Recommendations

It is recommended that institutions charged with the responsibility for preparing educational administrators undertake programs that prepare school leaders to be sensitive to the need for change, to be able to recognize when change will be beneficial or when stability is preferred, and to be skilled in accomplishing the change when it is needed. Such a program should emphasize and build upon the distinctions made between leader and administrative behavior and upon the necessity of the principal to balance the needs of the organization with those of the individuals. This calls for an emphasis upon the acquisition of knowledge and expertise in administrative skills, balanced by an equal emphasis upon needed human relation's skills so that the leader may be capable of providing effective leadership within the appropriate framework of the moral and ethical values of our democratic society.

It is also recommended that the well-established practice by which superintendents assume the responsibility for evaluating subordinates (principals) without using the evaluations of other reference groups be abandoned. Superintendents need to recognize that they run a high risk of making inappropriate and inaccurate evaluations when they utilize only their own subjective opinion.

The approaches in preparation and principal evaluation thus advocated should be closely coordinated with an increased emphasis upon related research. More studies are needed which utilize the multiple-criterion approach to the study of administrator effectiveness. Studies, such as the present one, utilizing the fulcrum of change offer fruitful areas for cooperation between administrators and research specialists.

The present study has shown that certain aspects of the principal's leadership are associated with the number of innovations in his school. Other studies in other areas of the nation are needed to supplement the findings of this and similar studies. The researcher has drawn heavily upon the findings of earlier investigators. It is hoped that others in turn will explore further implications of this study.

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APPENDIX A

Principals Participating in the Study

1. Broken Arrow	H. K. Ragsdale
2. Carnegie	John Gimlin
3. Choctaw	Donald Neighbors
4. Crooked Oak	Jack Strahorn
5. Del City	A. J. Evans
6. Dewey	B. R. Mitchell
7. Eufaula	William T. McCarty
8. Harrah	H. W. Crisp
9. Hartshorne	Carl O. Butler
10. Hugo	Simon Parker
11. Kingfisher	Rodger Howell
12. Luther	Melvin Shinn
13. Medford	Dan Schuneman
14. Midwest City	Ray L. Polk
15. Okla. City Capitol Hill	Clarence Breithaupt
16. Okla. City Central	Joseph H. Lawter
17. Okla. City Classen	Lloyd Estes
18. Okla. City Dunjee	Fred D. Factory
19. Okla. City Grant	Clarence Huffman
20. Okla. City Harding	Lederle Scott
21. Okla. City Marshall	Bob Cheney
22. Okla. City Southeast	Dee L. King
23. Picher-Cardin	Donald K. Smith
24. Stilwell	Clifford Hudgins
25. Tulsa East Central	James W. Payne
26. Tulsa Edison	Lewis Cleveland
27. Tulsa Will Rogers	Ray Knight
28. Westville	Woodrow Bowles
29. Yale	Mrs. Norma S. Velvin
30. Yukon	Don Graves

APPENDIX B

NATIONAL INVENTORY OF SECONDARY SCHOOL INNOVATION

NORTH CENTRAL ASSOCIATION OF COLLEGES
AND SECONDARY SCHOOLS
Commission on Secondary Schools

Gordon Cawelti, *Executive Secretary*
5454 South Shore Drive
Chicago, Illinois 60615

TO: Principals of Regionally Accredited High Schools

The Secondary Commissions of all six regional accrediting associations have been asked to cooperate in carrying out this study of innovations which are finding their way into American high schools. Approval has been given by the executive officers in your commission to request the cooperation of member schools in providing the information requested herein. This information is being sought to determine the extent to which a number of practices have been adopted nationally, and to subsequently provide member schools with more information about their actual use. It is recognized that some of the practices listed may no longer be regarded as an innovation by some schools, but you are requested to take a few minutes to provide the information requested about each of the items. Innovation is defined as any program or practice not generally in use.

The data derived from the study will in no way affect the accreditation status of your school since the identity of individual schools or systems will not be disclosed. Your school will receive a summary of the results of this study through an official publication of association, NCA Today. Additional information on the results will also later be provided in a similar manner as selected innovations are reported on in more depth. This inventory is a joint project of the North Central Association and the Kettering Foundation's Institute for Development of Educational Activity (IDEA).

Instructions:

Please complete the information requested describing your school under Part I of the enclosed sheet. Then read carefully the definitions provided on the back for the various innovations or practices we are seeking information on. If you check one of the "Yes" categories, note that you should also attempt to indicate the approximate date the practice began in your school. If you check "No," this is the only response needed for that item.

Example:

Innovation	Yes, presently in use		If yes, check year begun			Definitely plan to adopt it next year	Have tried but abandoned	No, Practice Not Being Used
	Fully implemented and operating	Being tried on limited basis	Before 1958	59-63	64-			
27. Extended School Year	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In the above instance, the school adopted this practice during the period indicated and it is fully implemented. You should place an "x" in the other yes category, "Being tried on a limited basis," if only one or a few of several sections of a subject are using the special materials indicated or engaged in the practice shown. This assumes you might ultimately find it appropriate to adopt it for all sections. Similarly, if only one department is following a certain practice, but others could do likewise, the limited category should be used.

If you have not served in the school a sufficient period of time to know the date a practice was begun, please consult with persons who would have this information.

Your cooperation in this inventory is appreciated. When you have completed responding to each of the items, tear off the attached page and place the completed questionnaire in the self-addressed envelope which should be sent to:

Gordon Cawelti, Executive Secretary
Secondary Commission - North Central Association
5454 South Shore Drive
Chicago, Illinois 60615

DEFINITIONS

Curriculum

1. *PSSC Physics* – Physical Science Study Committee materials.
2. *CHEM Study Chemistry* – Chemical Education Materials Study.
3. *CBA Chemistry* – Chemical Bond Approach materials.
4. *SMSG Math* – School Mathematics Study Group materials.
5. *UICSM Math* – University of Illinois Committee on School Mathematics materials.
6. *ESCP Physical Science* – Earth Science Curriculum Project materials.
7. *SSSP Physical Science* – Secondary School Science Project (Princeton) physical science course using Time, Space, Matter.
8. *Humanities Course* – An elective or required course given for at least a semester's credit which combines instruction in art, music, literature, and philosophy.

Technology

9. *Television Instruction* – One or more classes regularly uses open or closed circuit television as a means of teaching courses for credit.
10. *Programmed Instruction* – A course designed for independent use in which students regularly used programmed materials (without a machine) so organized as to proceed in small steps, respond to information, and be informed immediately whether or not the response is correct.
11. *Teaching Machine* – A mechanical device which presents a computerized educational program designed to teach a student through controlled communication—used regularly in the classroom instruction.
12. *Language Laboratory* – One or more foreign language classes use tapes and tape recorders in employing the audio-lingual method of teaching.
13. *Data-Processing Equipment* – Electronic accounting machines and computers are used for class scheduling, reporting marks, attendance accounting, etc.
14. *Telephone Amplification* – One or more classes periodically arranges to amplify telephone conversations dealing with information being studied in class.
15. *Simulation or Gaming* – One or more classes periodically uses a device to create realistic political or social situations in class for helping students to become involved in decision-making.

Organization

16. *Flexible Scheduling* – The school operates on a variable schedule which starts with modules of 5 to 20 minutes and organizes the day into various combinations of these modules according to the different learning environments required.
17. *Team Teaching* – A course under the direction of two or more faculty members, all of whom participate directly in planning and meeting the class sessions.
18. *College Credit Courses* – High school students take Advance Placement courses and examinations, or a similar kind of arrangement, whereby credit is given for college level courses.
19. *Nongraded Program* – Students may pursue any course in which he is interested, and has the ability to achieve, without regard to grade level or sequence; subjects are not divided into semesters and students progress on individual basis.
20. *Teacher Aides – Paraprofessionals* – Use of non-degree persons for assisting teachers in essentially non-teaching duties such as evaluating student compositions, supervising student halls, or checking papers.
21. *Honor Study Halls* – No teachers present in study halls; sometimes monitored by students.
22. *Work-Study Program* – A plan for integration of classroom work and practical experience through alternative attendance at class and employment in business, industry, or government. Distributive Education programs may also be counted.
23. *School-Within-A-School* – An organizational design whereby a large secondary school is divided into smaller schools each having its own administration, guidance staff, building space, and students.
24. *Cultural Enrichment Program* – A regular program attempting to expose students to elements of society outside the school such as concerts, lectures, museums. This is intended as a regular program for given students, not just occasional field trips.
25. *Student Exchange Program* – During the last three years, at least one foreign student has attended your school for a year, and one of your students has spent a year in an overseas school as part of an exchange program.
26. *Optional Class Attendance* – An attempt to encourage independent study by permitting students to have a choice as to whether or not they will attend class regularly.
27. *Extended School Year* – The total number of days students attend school (exclusive of summer sessions) is in the area of 200 days or more, or at least approximately two weeks in excess of what may be legally required.

SECONDARY SCHOOL INNOVATION SCALE

Name of School _____
City _____

(Print in squares—abbreviate if necessary)

Address _____ State _____

Principal's Name _____ (please indicate if title of head building administrator is other than principal)

Part I – Place an “x” in the box opposite the category best describing your school:

1. What is your current pupil enrollment?
- ☐ Fewer than 200
- ☐ 200 - 499
- ☐ 500 - 1499
- ☐ 1500 - 2499
- ☐ Over 2500
2. What is the average annual per-pupil expenditure for instructional purposes?
- ☐ Less than \$350
- ☐ \$350 - \$499
- ☐ \$500 - \$649
- ☐ Over \$650
3. Which of the following best describes the kind of school this is?
- ☐ Public
- ☐ Parochial or diocesan
- ☐ Private, religious affiliated
- ☐ Private, not religious affiliated
- ☐ Government, other
4. A majority of your students live in which kind of area?
- ☐ City of over 400,000 residents
- ☐ Community of 5000 - 399,999 (not suburban)
- ☐ Suburban - within urban fringe of central city
- ☐ Small town of under 5000
- ☐ Rural

Part II – Read the innovation definitions on the back of the attached instruction sheet. Remember that if the practice is not being used, only one “x” need be inserted in the appropriate box at the far right unless it has been tried and abandoned; in this case, both the boxes to the far right should be checked. If you are using a given practice, place an “x” showing it is either fully operative or being tried on a limited basis, and then indicate your best recollection of when it was started. Two boxes should be marked for each innovation or practice being used. Only one mark is needed if you definitely plan to adopt a practice next year.

Innovation or Practice	Yes, presently in use		If yes, check year begun	Definitely plan to adopt it next year	Have tried but abandoned	No, practice not being used
	Fully implemented and operating	Being tried on limited basis				
			Before 59- 64- 1958 63 66			

Curriculum

- | | | | | | | | | | | | | | | | | |
|----|-------------------------------|--------------------------|-------|--------------------------|-------|--------------------------|---|--------------------------|---|--------------------------|-------|--------------------------|-------|--------------------------|-------|--------------------------|
| 1. | PSSC
Physics ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 2. | CHEM Study
Chemistry ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 3. | CBA
Chemistry ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 4. | SMSG
Mathematics -- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 5. | UICSM
Mathematics -- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 6. | ECSP
Physical Science | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 7. | SSSP
Physical Science | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 8. | Humanities
Course ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |

Technology

- | | | | | | | | | | | | | | | | | |
|----------------------------|-----|--------------------------|-------|--------------------------|-------|--------------------------|---|--------------------------|---|--------------------------|-------|--------------------------|-------|--------------------------|-------|--------------------------|
| 9. Television Instruction | ... | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 10. Programmed Instruction | ... | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |
| 11. Teaching Machines | ... | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | - | <input type="checkbox"/> | - | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> | ----- | <input type="checkbox"/> |

(over)

Innovation or Practice	Yes, presently in use		If yes, check year begun			Definitely plan to adopt it next year	Have tried but abandoned	No, practice not being used
	Fully implemented and operating	Being tried on limited basis	Before 1958	59-63	64-66			
12. Language Laboratory -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Data-Processing Equipment -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Telephone Amplification--	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Simulation or Gaming -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization - Misc.								
16. Flexible Scheduling -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Team Teaching -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. College Credit Courses in H S -	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Nongraded School -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Teacher Aides-paraprofessionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Honor Study Halls-----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Work - Study Program -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. School-Within-a-School-----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Cultural Enrichment Programs--	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Student Exchange Program -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Optional Class Attendance -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Extended School Year -----	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: You are invited to report any other practices you regard as innovative for your school. The study will be especially interested in any social studies curriculums (anthropology, economics, history) in which new materials such as those developed at Amherst, Northwestern, Carnegie Tech., etc., are the basic resources. Use additional sheet if needed.

28. _____

29. _____

30. _____

APPENDIX C

THE OHIO STATE UNIVERSITY

February 14, 1967

Mr. Joe Garrison
Western Oaks Junior High School
7200 N.W. 23rd
Bethany, Oklahoma 73008

Dear Mr. Garrison:

You have our permission to use the LBDQ in your
doctoral research.

Sincerely,

Ralph M. Stogdill

RMS/az

enclosures

APPENDIX D

April 14, 1967

Dear _____,

You are one of a group of Oklahoma secondary school principals selected to participate in a research study investigating the relationship between the leader behavior of the principal and educational innovations in the school. A secondary purpose of the study is concerned with obtaining dependable knowledge about the leadership behavior of school principals as it is perceived by their professional colleagues. Enclosed is a description of the project and what is required of those who participate.

You are asked to:

1. Furnish the researcher with a list of your staff members--this may be assistant principals, counselors, and/or faculty members--who have worked directly under your supervision for a minimum of three years prior to the present school year of 1966-67.
2. Fill out a questionnaire which will be furnished you describing how you perceive you behave as a leader.
3. Encourage your superintendent and those staff members who are selected to fill out the same questionnaire and return it to the researcher.

Although the questionnaire concerns your leader behavior as it is perceived by your work-group, the research is not concerned with the scores of a particular principal but with the scores for the entire sample of principals as a whole.

Elaborate precautions will be taken to protect the anonymity of you, your school, and the other participants. The scores by which the individual members of your staff describe your leader behavior will not be revealed. These scores will be averaged so that you, and you alone, will know how your staff, as a group, perceive you to behave. The findings will be reported in such a way that it will be impossible for anyone to identify any individual

principal or any individual school. Please make this clear to all the members of your staff who participate in the study. Please emphasize, too, that all data, and especially all references to you as an individual, will be treated in absolute professional confidence.

When the study has been completed and the data have been analyzed, you will be given a complete report on the findings.

We greatly appreciate your cooperation, and hope that you and the members of your staff will be able to participate in this study. Please fill out the enclosed form indicating your willingness to participate and return it, together with a list of those staff members who meet the aforementioned delimitations, to me in the enclosed envelope.

Please, may we hear from you immediately as we must complete the gathering of the data before the present school term is completed. If you have any questions concerning the study, please phone me collect at any time.

Sincerely,

Joe M. Garrison, Principal
Western Oaks Junior High School
7200 N. W. 23rd Street
Bethany, Oklahoma 73008
Phone: Sunset 9-4434 (Area Code 401)

Res: 2315 Donald
Bethany, Okla. 73008
Phone: Windsor 2-5819
(Area Code 401)

Enclosure

APPENDIX E

April 7, 1967

Dear _____,

One of your principals, Mr. _____, has been selected to participate in a research study investigating the relationships between the leadership behavior of secondary school principals and educational innovations and change in their schools. We wish to ask that you take a few minutes to fill out a questionnaire which will be furnished to you.

The questionnaire contains descriptive items which you may use to indicate how your principal behaves in regard to his leadership. In the case of large school systems in which the superintendent may not be involved directly with the principal, we ask that they have one of their assistants or supervisors who is sufficiently acquainted with the subject to complete the questionnaire.

Please be assured that the results of your questionnaire will be handled in the strictest professional confidence. In no instance will the results of your questionnaire be made available to your principal or to any one else. He, nor anyone, will not be able to determine how you describe his behavior.

Enclosed are a description of the project and a statement of what is required of those who participate. We sincerely hope you will find the time to participate. Please indicate on the enclosed card your willingness to participate and return it immediately to me.

Very truly yours,

Joe M. Garrison, Principal
Western Oaks Jr. High

Enclosures (2)

APPENDIX F

OKLAHOMA ASSOCIATION OF
SECONDARY SCHOOL PRINCIPALS

April 14, 1967

Dear Administrator,

We would like to ask your cooperation in a research project being conducted by Mr. Joe Garrison, Principal, Western Oaks Junior High School of Putnam City Schools. The study will be used by Mr. Garrison to complete requirements of an Ed.D. degree and is under the direction of Dr. Glenn R. Snider, Professor of Education at Oklahoma University.

The purpose of the study is to obtain dependable knowledge about the leadership behavior of Oklahoma secondary school principals and its relation to innovation and change in the schools. Knowledge gained from this study can make a definite contribution to administrative and leadership theory and can provide the respondent principals with means for improving their own leadership skills.

The study is being sponsored by the Leadership Committee of the Oklahoma Association of Secondary School Principals as the Committee feels the study can contribute to the improvement of the secondary school principalship in Oklahoma. We urge that you and your staff give your wholehearted support and cooperation to Mr. Garrison in carrying out this worthwhile study.

Very truly yours,

Bill Smith, President

Jim Sandage, President Elect

Ray Knight, Chairman
Leadership Committee

Glenn R. Snider, Advisor

APPENDIX G

The Leader Behavior of Oklahoma Secondary School Principals

The purpose of this study is to obtain dependable knowledge concerning the relationship between the leader behavior of the secondary school principal and educational innovations made in his school. The principals selected for the study have all recently participated in a national inventory of current educational innovations conducted by the North Central Association Secondary Commission in collaboration with the Kettering Foundation's Institute for the Development of Educational Activity.

Information derived from the present study will be compared with data from the North Central study in an attempt to determine if there is a relation between the leader behavior of the principal and innovations in his school. The project has been approved by Dr. Gordon Cawelti, Executive Secretary of the North Central Association Secondary Commission and Mr. Jake Smart, Assistant State Superintendent in Charge of Instruction.

Knowledge gained from this study can be useful in several ways:

1. It can contribute to administrative and leadership theory by testing the presumed relationships between the leadership of the principal and the amount of change and innovation in his school.

2. It can provide the respondent principal with an excellent and badly needed method of determining how his professional colleagues view his behavior.

3. It can suggest to the principal methods of improving his leadership skills.

4. It can suggest to the principal effective methods to be used in encouraging curricular change.

The instrument being used for this part of the study is the Leader Behavior Description Questionnaire as developed by the Personnel Research Board at Ohio State University. The questionnaire is a reliable instrument that has been widely used in similar studies in other states. The LBDQ is in multiple choice format, containing one hundred items, each of which describes a specific characteristic of leader behavior. The respondent describes the behavior of the leader by marking for each item one of five adverbs: always, often, occasionally, sometimes, never.

Plan of the Study. A sample of 30 principals has been selected from the total group of 160 Oklahoma secondary schools that participated in the North Central Association study. From each school we would like to secure the following information:

1. A description by the superintendent of how he perceives the principal to behave as a leader.

2. A description by the principal of how he perceives he behaves.

3. A description by each of seven staff members of how they perceive the principal behaves as a leader.

In each case the description will be in terms of responses to the one hundred items included in the Leader Behavior Description Questionnaire.

Each respondent will be asked to fill out one LBDQ which should require only about thirty minutes to complete. A separate questionnaire, complete with instructions, will be sent to each respondent together with a stamped return envelope. He will complete it in strict privacy and mail it directly back to the researcher.

Results of these questionnaires will be treated in the strictest professional confidence.

1. No member of the organization will see any completed questionnaire other than the one he fills out himself.

2. Each respondent will be assigned a code number. Thereafter, the data will be analyzed entirely in terms of these code numbers with absolutely no reference to the names of the individual respondents.

3. Upon receipt of the seven staff member questionnaires, two will be discarded at random. The remaining five will be

used to compute the principal's mean score. As a result no one can be sure which five respondents' scores make up the average.

4. No one can ever know how an individual reported on the questionnaire. Only the average score of a randomly selected group of five staff members will be reported.

5. The results of the questionnaires will be reported in terms of group trends and relationships. The research is not concerned with the scores of a particular principal, but in the relationship among the scores for the sample as a whole.

6. The LBDQ scores for the sample as a whole will then be compared with the average number of innovations in the schools, as reported by the North Central study, in an effort to determine the relationships.

7. In no case will any individual school or person be identified or in any way portrayed in an unfavorable manner.

APPENDIX H

Confirmation Form

Dear Mr. Garrison:

Check the appropriate blanks:

_____ I shall be most happy to participate in this research.

_____ I will be unable to participate in this study.

Participating principals will receive a summary of the findings of this research.

_____ Name

_____ School

_____ Address

List of Staff Members

The following staff members have been with me for at least three years (since 1963) and are willing to participate in the study. (Please list at least ten staff members with whom you work. You may enclose a duplicated list with appropriate staff members checked if you prefer.)

- | | |
|----------|-----------|
| 1. _____ | 9. _____ |
| 2. _____ | 10. _____ |
| 3. _____ | 11. _____ |
| 4. _____ | 12. _____ |
| 5. _____ | 13. _____ |
| 6. _____ | 14. _____ |
| 7. _____ | 15. _____ |
| 8. _____ | |

APPENDIX I

Description of Respondent SchoolsHigh Innovative Schools

	Enrollment	Size of Staff	Type of School	Per Pupil Expen- diture	Type of Community*	No. of Innov.
1.	500-1499	45½	Jr.-Sr.	\$350+	Large City	14
2.	500-1499	46	Jr.-Sr.	350+	Large City	13
3.	500-1499	23	Jr.-Sr.	-350	Suburban	13
4.	1500-2499	66	Jr.-Sr.	350+	Large City	12
5.	1500-2499	77	Sr.	350+	Large City	12
6.	1500-2499	77	Sr.	350+	Large City	11
7.	1500-2499	89	Sr.	350+	Large City	11
8.	1500-2499	76	Sr.	350+	Suburban	11
9.	1500-2499	99	Sr.	350+	Large City	11
10.	Over 2500	121	Jr.-Sr.	350+	Large City	10
11.	500-1499	53	Sr.	350+	Large City	9
12.	500-1499	43	Sr.	350+	Large City	9
13.	200-499	21	Sr.	-350	Small Town	9
14.	-200	17	Sr.	350+	Small Town	9
15.	200-499	12	Jr.-Sr.	-350	Small Town	9
<hr/>						
	Mean	57		350+		11

Low Innovative Schools

1.	200-499	14	Jr.-Sr.	350+	Small Town	0
2.	-200	15	Jr.-Sr.	500+	Rural	0
3.	-200	15	Jr.-Sr.	350+	Small Town	1
4.	-200	17	Sr.	650+	Small Town	1
5.	200-499	21	Sr.	350+	Medium Town	1
6.	-200	14	Sr.	350+	Small Town	2
7.	200-499	18	Sr.	-350	Medium Town	2
8.	200-499	25	Jr.-Sr.	650+	Small Town	2
9.	200-499	22	Sr.	-350	Medium Town	2
10.	500-1499	24	Sr.	350+	Suburban	2
11.	-200	20	Jr.-Sr.	-350	Small Town	2
12.	500-1499	33	Jr.-Sr.	350+	Suburban	2
13.	500-1499	50	Sr.	350+	Suburban	2
14.	500-1499	36	Sr.	350+	Medium Town	2
15.	-200	13	Sr.	350+	Small Town	2
<hr/>						
	Mean	22.5		350+		1.5

*Large City 250,000 - 399,000
 Medium Town 5,000 - 15,000
 Small Town Less than 5,000
 Rural

APPENDIX J

April 19, 1967

Dear Teacher,

Your principal, Mr. _____, is participating in a research project to determine how his staff perceives his leadership behavior. With his permission and complete cooperation, we are asking you, and six others of your faculty, to complete questionnaires. Please complete the enclosed questionnaire (in strict privacy) and return it to me immediately in the enclosed, stamped, self-addressed envelope.

Results of your questionnaire will be treated in the strictest professional confidence.

1. No member of your school will see any completed questionnaire other than the one he fills out himself.

2. Do not sign your name. The number appearing in the upper right hand corner of your questionnaire is your assigned code number. The data will be analyzed entirely in terms of these code numbers with absolutely no reference to the names of individual respondents.

3. Upon receipt of the seven staff member questionnaires from your school, two will be discarded at random. The remaining five will be used to compute the principal's average score. As a result no one, not even you, can be sure which five respondents' scores make up the average.

4. No one can ever know how you as an individual reported on the questionnaire. Only the average score of a randomly selected group of five staff members will be reported.

5. The results of the questionnaires will be reported in terms of group trends and relationships. The research is not concerned with the scores of a particular principal, but in the relationship among the scores of all the principals taking part in the study.

6. In no case will any individual school or person be identified or in any way portrayed in an unfavorable manner.

Please complete the questionnaire and return it today as time is of the utmost importance.

Very truly yours,

Joe M. Garrison, Principal
Western Oaks Jr. High School

Enclosures (2)

APPENDIX K

LEADER BEHAVIOR DESCRIPTION QUESTIONNAIRE—Form XII

**Originated by staff members of
The Ohio State Leadership Studies
and revised by the
Bureau of Business Research**

Purpose of the Questionnaire

On the following pages is a list of items that may be used to describe the behavior of your supervisor. Each item describes a specific kind of behavior, but does not ask you to judge whether the behavior is desirable or undesirable. Although some items may appear similar, they express differences that are important in the description of leadership. Each item should be considered as a separate description. This is not a test of ability or consistency in making answers. Its only purpose is to make it possible for you to describe, as accurately as you can, the behavior of your supervisor.

Note: The term, "*group*," as employed in the following items, refers to a department, division, or other unit of organization that is supervised by the person being described.

The term "*members*," refers to all the people in the unit of organization that is supervised by the person being described.

Published by

**Bureau of Business Research
College of Commerce and Administration
The Ohio State University
Columbus, Ohio**

DIRECTIONS:

- a. READ each item carefully.
- b. THINK about how frequently the leader engages in the behavior described by the item.
- c. DECIDE whether he (A) *always*, (B) *often*, (C) *occasionally*, (D) *seldom* or (E) *never* acts as described by the item.
- d. DRAW A CIRCLE around *one* of the five letters (A B C D E) following the item to show the answer you have selected.

A — Always
B — Often
C — Occasionally
D — Seldom
E — Never

- e. MARK your answers as shown in the examples below.

Example: He often acts as described..... A **(B)** C D E

Example: He never acts as described..... A B C D **(E)**

Example: He occasionally acts as described..... A B **(C)** D E

-
1. He acts as the spokesman of the group..... A B C D E
 2. He waits patiently for the results of a decision..... A B C D E
 3. He makes pep talks to stimulate the group..... A B C D E
 4. He lets group members know what is expected of them..... A B C D E
 5. He allows the members complete freedom in their work..... A B C D E
 6. He is hesitant about taking initiative in the group..... A B C D E
 7. He is friendly and approachable..... A B C D E
 8. He encourages overtime work..... A B C D E
 9. He makes accurate decisions..... A B C D E
 10. He gets along well with the people above him..... A B C D E
 11. He publicizes the activities of the group..... A B C D E
 12. He becomes anxious when he cannot find out what is coming next..... A B C D E

A — Always
 B — Often
 C — Occasionally
 D — Seldom
 E — Never

- | | | | | | |
|--|---|---|---|---|---|
| 13. His arguments are convincing..... | A | B | C | D | E |
| 14. He encourages the use of uniform procedures..... | A | B | C | D | E |
| 15. He permits the members to use their own judgment in solving problems. | A | B | C | D | E |
| 16. He fails to take necessary action..... | A | B | C | D | E |
| 17. He does little things to make it pleasant to be a member of the group... | A | B | C | D | E |
| 18. He stresses being ahead of competing groups..... | A | B | C | D | E |
| 19. He keeps the group working together as a team..... | A | B | C | D | E |
| 20. He keeps the group in good standing with higher authority..... | A | B | C | D | E |
| 21. He speaks as the representative of the group..... | A | B | C | D | E |
| 22. He accepts defeat in stride..... | A | B | C | D | E |
| 23. He argues persuasively for his point of view..... | A | B | C | D | E |
| 24. He tries out his ideas in the group..... | A | B | C | D | E |
| 25. He encourages initiative in the group members..... | A | B | C | D | E |
| 26. He lets other persons take away his leadership in the group..... | A | B | C | D | E |
| 27. He puts suggestions made by the group into operation..... | A | B | C | D | E |
| 28. He needles members for greater effort..... | A | B | C | D | E |
| 29. He seems able to predict what is coming next..... | A | B | C | D | E |
| 30. He is working hard for a promotion..... | A | B | C | D | E |
| 31. He speaks for the group when visitors are present..... | A | B | C | D | E |
| 32. He accepts delays without becoming upset..... | A | B | C | D | E |
| 33. He is a very persuasive talker..... | A | B | C | D | E |
| 34. He makes his attitudes clear to the group..... | A | B | C | D | E |
| 35. He lets the members do their work the way they think best..... | A | B | C | D | E |
| 36. He lets some members take advantage of him..... | A | B | C | D | E |

A — Always
 B — Often
 C — Occasionally
 D — Seldom
 E — Never

- | | | | | | |
|--|---|---|---|---|---|
| 37. He treats all group members as his equals..... | A | B | C | D | E |
| 38. He keeps the work moving at a rapid pace..... | A | B | C | D | E |
| 39. He settles conflicts when they occur in the group..... | A | B | C | D | E |
| 40. His superiors act favorably on most of his suggestions..... | A | B | C | D | E |
| 41. He represents the group at outside meetings..... | A | B | C | D | E |
| 42. He becomes anxious when waiting for new developments..... | A | B | C | D | E |
| 43. He is very skillful in an argument..... | A | B | C | D | E |
| 44. He decides what shall be done and how it shall be done..... | A | B | C | D | E |
| 45. He assigns a task, then lets the members handle it..... | A | B | C | D | E |
| 46. He is the leader of the group in name only..... | A | B | C | D | E |
| 47. He gives advance notice of changes..... | A | B | C | D | E |
| 48. He pushes for increased production..... | A | B | C | D | E |
| 49. Things usually turn out as he predicts..... | A | B | C | D | E |
| 50. He enjoys the privileges of his position..... | A | B | C | D | E |
| 51. He handles complex problems efficiently..... | A | B | C | D | E |
| 52. He is able to tolerate postponement and uncertainty..... | A | B | C | D | E |
| 53. He is not a very convincing talker..... | A | B | C | D | E |
| 54. He assigns group members to particular tasks..... | A | B | C | D | E |
| 55. He turns the members loose on a job, and lets them go to it..... | A | B | C | D | E |
| 56. He backs down when he ought to stand firm..... | A | B | C | D | E |
| 57. He keeps to himself..... | A | B | C | D | E |
| 58. He asks the members to work harder..... | A | B | C | D | E |
| 59. He is accurate in predicting the trend of events..... | A | B | C | D | E |
| 60. He gets his superiors to act for the welfare of the group members..... | A | B | C | D | E |

A — Always
 B — Often
 C — Occasionally
 D — Seldom
 E — Never

- | | | | | | |
|---|---|---|---|---|---|
| 61. He gets swamped by details..... | A | B | C | D | E |
| 62. He can wait just so long, then blows up..... | A | B | C | D | E |
| 63. He speaks from a strong inner conviction..... | A | B | C | D | E |
| 64. He makes sure that his part in the group is understood by the group members | A | B | C | D | E |
| 65. He is reluctant to allow the members any freedom of action..... | A | B | C | D | E |
| 66. He lets some members have authority that he should keep..... | A | B | C | D | E |
| 67. He looks out for the personal welfare of group members..... | A | B | C | D | E |
| 68. He permits the members to take it easy in their work..... | A | B | C | D | E |
| 69. He sees to it that the work of the group is coordinated..... | A | B | C | D | E |
| 70. His word carries weight with his superiors..... | A | B | C | D | E |
| 71. He gets things all tangled up..... | A | B | C | D | E |
| 72. He remains calm when uncertain about coming events..... | A | B | C | D | E |
| 73. He is an inspiring talker..... | A | B | C | D | E |
| 74. He schedules the work to be done..... | A | B | C | D | E |
| 75. He allows the group a high degree of initiative..... | A | B | C | D | E |
| 76. He takes full charge when emergencies arise..... | A | B | C | D | E |
| 77. He is willing to make changes..... | A | B | C | D | E |
| 78. He drives hard when there is a job to be done..... | A | B | C | D | E |
| 79. He helps group members settle their differences..... | A | B | C | D | E |
| 80. He gets what he asks for from his superiors..... | A | B | C | D | E |
| 81. He can reduce a madhouse to system and order..... | A | B | C | D | E |
| 82. He is able to delay action until the proper time occurs..... | A | B | C | D | E |
| 83. He persuades others that his ideas are to their advantage..... | A | B | C | D | E |

A — Always
 B — Often
 C — Occasionally
 D — Seldom
 E — Never

- | | | | | | |
|---|---|---|---|---|---|
| 84. He maintains definite standards of performance..... | A | B | C | D | E |
| 85. He trusts the members to exercise good judgment..... | A | B | C | D | E |
| 86. He overcomes attempts made to challenge his leadership..... | A | B | C | D | E |
| 87. He refuses to explain his actions..... | A | B | C | D | E |
| 88. He urges the group to beat its previous record..... | A | B | C | D | E |
| 89. He anticipates problems and plans for them..... | A | B | C | D | E |
| 90. He is working his way to the top..... | A | B | C | D | E |
| 91. He gets confused when too many demands are made of him..... | A | B | C | D | E |
| 92. He worries about the outcome of any new procedure..... | A | B | C | D | E |
| 93. He can inspire enthusiasm for a project..... | A | B | C | D | E |
| 94. He asks that group members follow standard rules and regulations..... | A | B | C | D | E |
| 95. He permits the group to set its own pace..... | A | B | C | D | E |
| 96. He is easily recognized as the leader of the group..... | A | B | C | D | E |
| 97. He acts without consulting the group..... | A | B | C | D | E |
| 98. He keeps the group working up to capacity..... | A | B | C | D | E |
| 99. He maintains a closely knit group..... | A | B | C | D | E |
| 100. He maintains cordial relations with superiors..... | A | B | C | D | E |

APPENDIX L

LBDQ Form XII - RECORD SHEET

											<u>Totals</u>
1. Representation	1	11	21	31	41						()
2. Reconciliation						51	61	71	81	91	()
3. Tol. Uncertainty	2	12	22	32	42	52	62	72	82	92	()
4. Persuasion	3	13	23	33	43	53	63	73	83	93	()
5. Structure	4	14	24	34	44	54	64	74	84	94	()
6. Tol. Freedom	5	15	25	35	45	55	65	75	85	95	()
7. Role Assumption	6	16	26	36	46	56	66	76	86	96	()
8. Consideration	7	17	27	37	47	57	67	77	87	97	()
9. Production Emph	8	18	28	38	48	58	68	78	88	98	()
10. Predictive Acc	9		29		49	59			89		()
11. Integration		19		39			69	79		99	()
12. Superior Orient	10	20	30	40	50	60	70	80	90	100	()

APPENDIX M

"t" TEST FOR DIFFERENCES BETWEEN MEANS¹

When σ_1 and σ_2 are Unknown But Presumed Equal

An unbiased estimate of σ^2 based on data from one sample is provided by

$$s^2 = \frac{N\bar{X}^2 - (\sum X)^2}{N(N-1)}$$

An unbiased estimate of σ^2 based on data from two samples is provided by

$$s^2 = \frac{(N_1-1)s_1^2 + (N_2-1)s_2^2}{N_1 + N_2 - 2}$$

An estimate of the variance of the difference between the two means is provided by

$$s_{\frac{X_1 - X_2}{\sqrt{N_1 N_2}}}^2 = s^2 \frac{N_1 + N_2}{N_1 N_2}$$

Then when $\mu_1 - \mu_2 = 0$, the formula for t becomes

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s^2 \frac{N_1 + N_2}{N_1 N_2}}}$$

and this has "Student's" distribution with $N_1 + N_2 - 2$ degrees of freedom.

¹Helen M. Walker and Joseph Lev, Statistical Inference, (Chicago: Holt, Rinehart and Winston, 1953), pp. 155-56.

APPENDIX N

ANOVA: An Example¹

If, in the overall analysis of variance for main effects, there was a significant main effect or interaction, a simple effects (or one-way analysis of variance) was run to determine where the significant differences were. Once this was determined a contrast (or comparison) analysis between each of the individual cells was run. In this manner it was determined specifically where the difference lay; that is, between what particular groups there was a difference.

The following table presents, as an example, the data of the individual overall analysis of one dimension--Production Emphasis (C. III, pp.89-91). Level D (columns) represents the LBDQ-12 mean descriptions as furnished by the respondent groups--the principals' self-descriptions (D-1), the superintendents' descriptions (D-2), and the staff members' descriptions (D-3). Level I (rows) represents the type of innovator, i.e., "high innovative" principals (I-1) and "low innovative" principals (I-2).

¹Winer, Statistical Principles in Experimental Design, pp. 140-227.

	Self Descriptions	Superintendents' Descriptions	Staff Descriptions	
High Innovative Principals I-1	1 $\sum x^2 = 18576.$ $\sum x = 524.$ n=15	2 $\sum x^2 = 16184.$ $\sum x = 488.$ n=15	3 $\sum x^2 = 18045.32$ $\sum x = 519.$ n=15	1531.0
Low Innovative Principals I-2	4 $\sum x^2 = 18845.$ $\sum x = 529.$ n=15	5 $\sum x^2 = 19588.$ $\sum x = 540.$ n=15	6 $\sum x^2 = 15364.72$ $\sum x = 478.0$ n=15	1547.0
	1053.0	1028.0	997.0	3078.0
	$\sum \sum x^2 = 106,603.04$			

Since the overall analysis of variance showed a significant interaction ($F=5.33$, $p<.01$), a simple effects ANOVA was conducted to determine just where the significant differences were. To determine if the significant differences were among descriptions of the "high innovative" principals, we calculated:

$$s.s. = \frac{(\sum x_1)^2 + (\sum x_2)^2 + (\sum x_3)^2}{n=15} - \frac{\sum x^2}{n=45}$$

Results:

s.s.	df	m.s.	F	P	
50.71	2	25.35	1.87	.05	N.S.

Thus, the significant differences did not lie among group descriptions of "high innovative" principals.

To determine if the differences were among descriptions of "low innovative" principals we calculated:

$$s.s. = \frac{(\sum X_4)^2 + (\sum X_5)^2}{15} - \frac{(\sum X_6)^2}{\frac{6}{\frac{4}{n} = 45}} = SS_{4vs5}$$

Results:

s.s.	df	m.s.	F	P
145.91	2	72.95	5.39	Significant at .01

Having determined that all significant differences were among the group descriptions of "low innovative" principals, we proceeded to make comparisons (contrasts) between each of the group descriptions of low innovators. Contrast comparisons are essentially equivalent to t-tests, but the error term of the overall analysis of variance is used instead of separate estimates of the standard deviations. All possible comparisons were made, i.e., (A) self descriptions to superintendent descriptions; (B) self descriptions to staff descriptions; and (C) superintendents' descriptions to staff descriptions.

$$(A) \quad \frac{(\sum X_4)^2 + (\sum X_5)^2}{15} - \frac{\sum_{i=4}^5 X_i^2}{30} = SS_{4vs5}$$

$$(B) \quad \frac{(\sum X_4)^2 + (\sum X_6)^2}{15} - \frac{\sum_{i=4}^6 X_i^2}{30} = SS_{4vs6}$$

$$(C) \quad \frac{(\sum X_5)^2 + (\sum X_6)^2}{15} - \frac{\sum_{i=5}^6 X_i^2}{30} = SS_{5vs6}$$

Results:

Self Descriptions vs Superintendents' Descriptions

<u>s.s.</u>	<u>df</u>	<u>m.s.</u>	<u>F</u>	<u>P</u>	
4.03	2	2.01	.14	.05	NS

Self Descriptions vs Staff Descriptions

<u>s.s.</u>	<u>df</u>	<u>m.s.</u>	<u>F</u>	<u>P</u>	
86.70	2	45.35	3.20	Significant at .05	

Superintendents' Descriptions vs Staff Descriptions

<u>s.s.</u>	<u>df</u>	<u>m.s.</u>	<u>F</u>	<u>P</u>	
128.13	2	64.06	4.73	Significant at .05.	

Significant differences among the work-groups in the other dimensions were determined in a similar manner.