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Deriving predictors of effective educational leadership for innovative situations through situational testing and regression analysis.

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DERIVING PREDICTORS OF EFFECTIVE EDUCATIONAL LEADERSHIP
FOR INNOVATIVE SITUATIONS THROUGH SITUATIONAL TESTING AND
REGRESSION ANALYSIS

A Dissertation Presented

By

Clinton E. Boutwell

Submitted to the Graduate School of the
University of Massachusetts in partial
fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May 1973

Major Subject: Education

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May 1973

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Deriving Predictors of Effective Educational Leadership
for Innovative Situations Through Situational Testing and
Regression Analysis (May, 1973)

Clinton E. Boutwell, B.S. Massachusetts State
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This study is an analysis and derivation of effective leadership attributes for a specific phase of organizational development called an "innovative task-situation phase." This phase is characterized as the earliest phase of organizational renewal or innovation. It is posited that in such a phase special leadership abilities are required. A school organization was selected which matched the defined innovation-phase criteria. Independent judges rated the leadership cadre on the basis of derived behavioral criteria and two subject groups were established: effective and ineffective leaders. Since the organization from which the data were gathered had developed and implemented a comprehensive plan for facilitating effective leadership, it was hypothesized that significant differences would be found in the personal attributes of the effectives and ineffectives; viz., their perception toward risk taking and innovation. Psychological and sociometric standardized inventories were administered and several factors found significant when correlated for effectiveness in the direction hypothesized

($p = .05$). Through tests for independence and stepwise regression analysis, the most significant variables were isolated for the statement of an effective leader prediction equation. These derived predictors relate to the psychological attributes of effective leaders in innovative situations which enable them to establish rapport with their followers and make them more willing to take risks in finding creative ways to solve problems (e.g., psychological mindedness and low caution; $p = .01$; $R^2 = .67$; $F = 19.2375$). Thus, the hypotheses were supported. A prediction formula for further research is offered and specific leadership selection instruments for the educational decision maker are suggested.

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C H A P T E R I

INTRODUCTION

Statement of the Problem

This study is concerned with the general research area of specifying factors which may be used as criteria for the identification of individuals with potential for effective organizational leadership. More specifically, the study is a contribution to the search for innovative leadership criteria and offers factors which potentially discriminate effective from noneffective personal characteristics when leadership is needed for innovative situations. It is posited in this study that when an educational organization is committed to renewal, that leaders with certain personality attributes will be more effective than those without such characteristics. By "commitment" and "organizational renewal," in this study, we mean that the school system has taken actions to channel its resources to accomplish new goals and new operational processes. For the district in this study the goals of the renewal are generally associated with building an organization classified as healthy. That is, the district was attempting to develop structures and interpersonal relations which had the characteristics of a healthy organization as identified by Miles (1965):

1. Goal Focus: This is the extent to which people in the organization understand and accept the achievable and appropriate goals of the organization.

2. Communication Adequacy: This is the vertical and horizontal internal communication and external communication with the environment, or the amount of "noise" and distortion and the ease and facility of communication.
3. Optimal Power Equalization: An important element of this dimension is the action of collaboration versus coercion.
4. Resources Utilization: This is effective use of personnel so that they feel -- as persons -- self-actualized, feel that they are growing and developing on their jobs.
5. Cohesiveness: This is the extent to which participants like the organization and want to remain in it in order to influence to collaborative style.
6. Morale: This is exhibited as feelings of well-being and satisfaction.
7. Innovativeness: This is the tendency to devise new procedures and goals, to grow, to develop, and to become more differentiated over a period of time.
8. Autonomy: Rather than being merely a "tool of the environment" which respond passively to outside stimuli, the autonomous organization tends to determine its own behavior in harmony with external demands.
9. Adaptation: Healthy organizations should be able to change, correct, and adapt faster than the environment.
10. Problem Solving Adequacy: This includes mechanisms for sensing and perceiving problems as well as those for solving problems permanently and with minimum strain.

In a conscious, systematic, and participatory way, the school organization in this study utilized its resources to move in the direction of maximizing the goals and procedures listed above. A more comprehensive description of the social matrix within which these attempts were made, the nature

of the community, the structural changes made, the decision making processes, and so forth is presented in Chapter III. For now it is important to note that the district in this study made such a total commitment. And yet it failed to accomplish the goals it set out to reach. The failure was attributed to weaknesses in the leadership cadre which was considered the main agency of change and movement toward the new goals and procedures.

This study is an investigation of that failure and an attempt to determine whether or not there are differences between those leaders who were effective in reaching the district goals with their followers and those leaders who were unsuccessful. If such differences can be found between effective and ineffective leaders within such a situation, not only will many of the confounding variables typically associated with natural setting leadership studies be controlled, but the derived differences have more predictive power for similar situations. This study is a report of findings from such an innovative organization in regard to the personal attributes of leaders found to be most effective in that organization.

Traditionally, natural settings studies have been faced with the problem of confounding variables since control of variables in the "real world" is so difficult. One of the strengths of this study, in that regard, is that the organization selected as the data producing source had made

a conscious and comprehensive attempt to obviate blocks to innovation and facilitate (through structural, financial, and legal moves) the effective functioning of leadership. When leadership in such a supportive system fails, the researcher has an opportunity to investigate the personal attributes of the leader cadre to determine possible effects from that source on failure. The central task is to isolate differences between effective and ineffective leaders in the situation and statistically determine the most significant differences between the two groups. The findings then may be used for prediction and possible selection of leaders for effectiveness in other situations dealing with innovation.

Even with the commitment of the organization used for this study, and its comprehensive planning, however, this study must be considered a first-cut attempt and thus exploratory rather than a definitive statement regarding the personal attributes of effective leaders in innovative situations.

Other caveats must also be noted. When in the discussion of leadership words such as "personality" and "personal attributes" are used, the author is not necessarily suggesting an interpretation related to psychodynamic mental set. The words refer merely to the propensity of an individual to respond in characteristic ways to objective or situational factors that elicit certain behaviors on his part.

There is, therefore, no attempt made to define situationally pervasive personality traits, only to identify and label certain behavioral patterns that become manifest as a person in a given situation displays them. The argument here is that in an innovative type situation certain individuals, with certain characteristic ways of interacting with others are more apt to be successful in a leadership capacity than people without those patterns. The findings in this study are a contribution to the empirical specification of the patterned behaviors associated with effective innovative leadership within organizations.

Statement of Hypotheses

The findings that are reported were derived from the investigation of leaders within an organization that had made a total commitment to change. Certain of the leaders were judged to be ineffective in their operation and others judged effective. The specific problem posed in this study, therefore, is related to this question: Are there measurable differences in the personal attributes between teacher-leaders judged effective and those judged ineffective in the innovative host organization. From that question the following hypothesis was derived:

There will be significant differences in the personal attributes of leaders judged effective in an innovative situation when compared with leaders judged ineffective in the same situation

when measured on standardized personality and interpersonal orientation inventories.

On the basis of analysis of research on the relationship between innovative situations and leadership, we see strong support for the proposition that there are very specific personal characteristics associated with those judged effective in such situations (Mills, 1967). March and Simon (1957), for example, distinguish between effectives and ineffectives in relationship to different situations with the descriptive labels "idea man" and "bureaucrat." Extensive evidence from cognitive psychology supports the argument that an individual's cognitive set influences his interactions with others (Bem, 1970). And a great deal of empirical work has been done over the past decade which demonstrates the relationship between the personal attributes of an individual and his power of influence in a group (Ellis et al., 1972). More specifically, Brown (1965) summarizes the research on personality and innovation and identifies inclination toward innovation with the personal traits of cognitive complexity, flexibility, and open set. Taking our cue from the work of social psychologists, therefore, our second hypothesis posits specific personal differences between the effective and ineffective leaders in this study:

There will be significant differences in the willingness to take risks, interpersonal sensitivities, and desire for originality between leaders judged effective and those judged ineffective in an innovative situation when measured on standardized personality inventories.

Statements of Significance and Limitations

The significance of the findings of this study and the general problem attended to rests on more than merely testing the hypotheses stated. The problem of confounding variables in natural settings studies such as the present one is the central methodological weakness (Katz, 1953). That is, the confounding variables, those outside the control of the researcher, may always potentially be a source for alternative explanation of the phenomena being investigated. The unique organizational setting from which the data in this study were drawn obviate many of the more overt confounding variables which may have been used to develop alternative propositions. The organization selected as the focus of this study was unique in the sense that it had developed a complete and comprehensive developmental model which consciously isolated potential blocking forces and systematically eliminated them. As we shall see, the changes the school system made in its structure, its staffing patterns, its use of financial resources, and so forth, were more extensive than other comparable districts, and all of them were designed to not only facilitate effective leadership but overtly encourage it.

The derived personal attributes of the effective leaders from such a situation have, therefore, greater logical reliability as potential sources of difference between effective and ineffective leadership. The approach in this study

is to gain some empirical, as well as logical, support for that contention. Obviously, if it is possible to derive the personal characteristics of effective leaders for innovation, the resultant criteria for identifying and selecting such leaders by educational decision makers will be made much more rational.

Since our study is exploratory, however, certain limitations must be clearly understood. First, this study is not an attempt to discover a definitive answer regarding the correlation between personal attributes and effective leadership. As mentioned previously, the study is an attempt to gain some initial behaviorally defined criteria and empirically reliable description of the characteristics of effective leaders in an innovative organizational setting. Our major concern is the development of first-cut behavioral criteria through the technique of situational testing, a research process by which the social scientist gains a set of accurate measures from a criterion situation useful for more exact focusing of observation and behavioral sampling in subsequent studies (Santostefano, 1969),

Second, we are not concerned in this study with a search for situationally pervasive leadership traits or for skills useful for all tasks confronting a developing organization. We are focusing narrowly on one phase of organizational development, called here the "innovative task-situation phase," and looking for correlations between effective

leader attributes and the specific demands of that situation.

Finally, we are not assuming that leadership effectiveness is determined solely on the basis of the personal characteristics of the leader. Leadership is the function of several interacting variables. We shall spend some time describing these variables and their interactions in the forthcoming chapters.

Definition of Terms

In addition to specifying the limitations of this study, there is also a need for clarifying certain key terms and operational constructs. They are as follows:

Organizational Change: The attempt by decision makers to move an organization or subsection of an organization in the direction of newly defined goals, processes, or products by both structural and/or personal change strategies is what is meant by the term organizational change. Structural changes refer to change attempts made through manipulation of the physical plant, staffing patterns, curriculum design, or other impersonal facets of the organization. Personal changes are those attempts at organizational change which focus on development of the capacities of the people in the organization.

Organizational Phases: The concept of organizational phases refers to the temporary homeostatic states an organization exhibits at given points in time as it moves from one

set of operating conditions to another. "A phase is regarded as the changing state of the system, through some interval of time" from one qualitative condition to another [p. 23] (Hills, 1969). As an organization moves from one set of operating conditions to another (as it innovates, for example), there are points at which its subsystems achieve a temporary homeostasis which is capable of being described and investigated as a system of interrelations (Bertalanffy, 1969). In that sense, therefore, the concept of organizational phase is a heuristic device useful for the systematic investigation of a given moment in the organization's development (Lippitt, 1969).

Several organizational theorists and researchers have utilized the phase concept for investigating organizations and their processes. Lippitt (1969) identifies six distinct phases in the life cycle of an organization. Likert (1967) identifies four "systems" of relationships within an organization ranging from the most authoritarian to the most permissive. From a slightly different perspective, Argyris (1965) developed a categorical matrix for describing a two-phase model of organizational relationships, one which indicates decreased organizational competence, and the other with increased organizational competence in dealing with its environment. Chin (1969) argues that only by use of the phase concept can the researcher begin to understand complex organizations. He sees the concept being used with

general systems theory approaches for the determination of interconnections, interdependencies, cause-effect relationships, and other dynamics within the organization for given moments of time.

The concept of organizational phase is centrally important to this study since it profoundly influences the determinants of effective leadership. If various phases in the development of an organization have situationally specific requirements in terms of leader role, as we posit in this study, the definition of effectiveness will change from phase to phase (Golembiewski, 1962). It may even be likely that an entirely new leadership cadre will be needed for different phases of development, as studies have demonstrated that not only is leadership effectiveness contingent on the task requirements and the expectations of the followers, but additionally on the stage of development of the group (Cartwright and Zander, 1968; Mills, 1967).

Innovative Task-Situation Organizational Phase: The phase of organizational development of primary concern in this study is called the innovative task-situation organizational phase. Leadership studies have identified several factors which must be accounted for when investigating leader effectiveness: the nature of the task, the characteristic of the followers, the normative dimensions of the organization, and the attributes of the leader (Gibb, 1969). The innovative task-situation organizational phase is defined in

such a way as to integrate the essential factors of the developmental stage. The phrase essentially refers to that period of organizational development in which the initial steps toward new operating principles, new goals, and/or new structures have been taken. There is a definite commitment to change beyond the discussion level. This phase has been called the "birth stage" by Lippitt (1969). In Lewin's terms it is the "unfreezing" stage (Lewin, 1948).

More specifically, the innovative task-situation phase is one in which certain members of the organization see a need for change, to make the organization better able to deal with its environment, and others in the organization either are resistant to change or are neutral. As Litterer (1969) puts it: "...as the needs of the organization change, increasing the potency of one group (because of its ability to define and implement organization), other groups will offer strong resistance to the changed relationship [p. 326]."

The requirements of leadership in such a phase are closely related to the ability to tolerate uncertainty and the willingness to take risks (Wallach and Kogan, 1965). Again, small group research has identified the relationship between leadership and situational requirements. At a later point we will review studies that identify the relationship between tasks and leadership effectiveness (Cartwright and Zander, 1968); and the influence of the leader's personal attributes on group influence in risk-like situations simi-

lar to the innovative task-situation phase (Rim, 1965). In the innovative phase there is high uncertainty and ambiguity as the old goals and processes decline in importance and their replacements still relatively unclear. In such situations the resistors and neutrals could be alienated and motivated to take active resisting roles. The leadership requirements, therefore, relate to acts and behaviors which take into account the precariousness of the situation. The leadership cadre must be sensitive to the needs and expectations of the clients, have exemplary modeling behavior, and the skills needed for influencing the followers to consider the new goals or processes. As Lewin (1956) summarizes, in an innovative task-situation, the leader must "open the shell of complacency."

Leadership: The process of influencing the behaviors and attitudes of members of an organization in the direction of desired and defined goals is called leadership.

Effective Leaders: Those individuals within an innovative task-situation organizational phase who are in formally defined leadership positions who were able to influence others in the organization to move in the direction of the behaviorally defined innovative goals as judged by independent raters using behavioral criteria are called effective leaders.

Ineffective Leaders: Those individuals within an innovative task-situation organizational phase who are in for-

mally defined leadership positions who were unable to influence others in the organization to move in the direction of the behaviorally defined innovative goals as judged by independent raters using behavioral criteria are called ineffective leaders.

The effective and ineffective leaders of this study are the subject population of the research.

C H A P T E R I I

REVIEW OF RELATED LITERATURE

Literature Related to Theoretical Assumptions

The search for effective leadership criteria for organizational development has been a continuing one for the past several decades. At one time the search concentrated on the specification of basic or generic traits of leaders which would allow for effective leadership in any situation and for any task (Stodgill, 1948). At other times the concern was with training leaders for predefined bureaucratic roles within an organization to maximize efficiency (Taylor, 1911). In more recent times efforts have been made to specify more empirically the variables influencing leadership functioning.

Based on Pigor's (1935) clarification of the concept of leadership as a dynamic process, several significant effective leadership variables have been discovered. The nature of the task, for example, determines in part the effectiveness of the leader (Jenkins, 1947; Hamblin, 1958). Follower-task interrelationships also are important influences on effectiveness of leadership (Carter and Nixon, 1949). Leader personality has been investigated from several points of view. The personality variable in its situational context was early demonstrated as influential on effectiveness (Sanford, 1950; Haythorn et al., 1959). Hollander (1964)

isolated a number of exchange processes that occurred between the leader and his followers as they related to leader effectiveness. Jacobs (1970) built upon Hollander's findings to develop a full transactional model of effective leadership. Fiedler (1972) has developed a leadership model which relates generic leadership styles to given task-situations. Other models for identifying and developing leadership skills for a wide variety of organizational and interpersonal situations have recently been offered (Hersey and Blanchard, 1972; Blake and Mouton, 1964). The precursor of these latter models was the monumental and important work done by researchers at Ohio State University during the 1940's and 1950's (Stodgill and Coons, 1957). The Ohio studies were the first to specify the relationship between task requirements and socio-emotional needs of the followers (Hemphill, 1962). All of the work on leadership to date has contributed significantly to a more exact specification of the problem of the present study.

Much of the study of leadership in the past, however, has been based upon the assumption that the organizational variables were given and were to be held constant. That is it was assumed that the structure and processes operating within the organization were more or less static, and that what was needed was the plugging in of leaders with the "correct" matching style or attributes. The question arises, however, as to what leadership functioning or style is effec-

tive when the organizational processes and structures themselves are targets of change in addition to changing the behaviors or maintaining the behaviors of the members of the organization. In such a situation, how does a decision maker select or identify individuals with the potential of effective leadership? Fiedler's model, for example, until recently assumed static interrelationships with the organization (Fiedler, 1967; 1970; 1972). The Hersey-Blanchard model is more dynamic in its conceptualization since it approaches the problem by suggesting that in organizational development the leader must first analyze the task-situation and adjust his operational style accordingly (Hersey and Blanchard, 1972).

While the models discussed above are necessary and significant contributions to our understanding and assessment of the function of leadership, some difficulties still remain when one considers organizational development as well as personal development (Korman, 1966; 1970). Several studies from psychology suggest that many individuals are incapable of the role flexibility demanded by the Hersey-Blanchard model (Adelson, 1969). Fiedler himself has suggested that perhaps a leader must develop more flexible responses (Fiedler, 1971; 1972). In his summary of research efforts, Fiedler (1972) discusses leadership from the standpoint of determining first the dominant style of the leader and later specifying his secondary style. He suggests that

a leader will adopt a secondary style in the face of aversive follower situations. That is, if the leader "discovers" that his high task style is producing dysfunctional consequences, he will adopt a more socio-emotional orientation (Fiedler, 1970; 1972). When conditions return to "normal," however, the leader's style reverts to its dominant orientation, which, it follows using Fiedler's reasoning, could again produce dysfunctional behaviors. Korman (1966) said the same thing in his critique of Fiedler's model several years ago.

The evidence from social psychology suggests that the only way of maintaining flexible or responsive leadership is to select individuals for leadership who already possess that personality capability (Brown, 1965). Social psychology has documented well the idea that individuals through socialization processes and reinforcement contingencies develop perceptual sets or frames of references which strongly influence their perceptions of their roles, other people, and requisite behavior within given situations (Sampson, 1971). They suggest that these sets are difficult or perhaps impossible to overcome or modify once an individual has reached maturity (Festinger, 1957). Such research seems to mitigate the assumption that a leader can develop a flexible style. But it also suggests that if a decision maker wishes to select leaders for his organization with flexible styles, it is possible for him to identify those individuals

who already have a personality which allows for flexibility. Such individuals are typified by social psychologists as having "open" or "nonauthoritarian" personalities or cognitive sets (Lindzey and Aronson, 1968). That capability, it is posited in this study, is exactly what is needed when a leader faces the task and situation of organizational change in addition to personal changes.

The implications of the findings from social psychology regarding individual personality styles and perceptions and leadership functioning bear directly on the goal of this study. This study is an attempt to move beyond and flesh-out the models developed by Fielder and Hersey-Blanchard by moving away from the use of ideal-type leadership categories and searching for empirical relationships between given task-situations and effective leadership behaviors. Such a task calls for the development of predictive criteria of effectiveness for task-situations.

Unfortunately, there have been many difficulties in the past with leadership prediction (Gibb, 1969). More often than not, these difficulties arose from the fact that researchers were either looking for pervasive traits or for single-variable explanations (Golembiewski, 1963). Golembiewski (1963) summarizes the prediction problem this way: "No great predictive accuracy can be expected when only a single variable, or a few variables, are controlled. Thus usually unspecified population and structural properties

are important intervening variables, which could significantly affect results [p. 216]." The research task, then, following Golembiewski's lead, is to complete multivariate empirical studies which take into account as many inter-relationships as possible. Golembiewski (1963) summarizes this point and also outlines the major methodological assumption of this study as follows:

More and more research [on leadership] is concerned with multivariate analysis based on functional premises related to a given situation or families of situations. Thus, the "situational" approach to leadership is defined increasingly in terms of the "psychological field;" that is, in terms of the entire range of structure, style, and population variables. This broad situational approach has great promise for it will pin down the unit within which the leader is conceived as operating and it will permit the relation of various types of leadership to characteristics of the context within which it is to be performed [p. 135, My emphasis].

It is exactly that situational approach that is taken in this study in regard to specifying the match between leader characteristics and task-situation requirements. It is, again as Golembiewski (1963) puts it, an attempt to determine "which leadership style is functional during which group phase for which explicit goals [pp. 216-17]."

One further problem with this approach, however, should be discussed. One might, taking a strict definition of the "situation," get such situational specificity that the heuristic potential of derived leadership characteristics would have no meaning for other situations. In such a

case the derived criteria of effective leadership would have little utility for educational decision makers. To meet this problem, researchers operating from the frame of reference of situational functionality have adopted the concept of "situational family" (Gouldner, 1950). Gouldner suggests that it is possible to derive identities or uniformities within situational settings which are capable of being abstracted and categorized as heuristic concepts. That process calls for exact specification of the situational components and the development of empirical classifications. Once that is done, it will be possible to identify "the similarities," as Gouldner (1950) puts it, "among some leadership situations or problems... [p. 13, His emphasis]."

One such situational family, the innovative task-situation organizational phase, is suggested here as a start in the research efforts described above. The essential task for the research is to give as specific a description of the situational family as possible, and then, empirically, begin the process of investigating the leadership phenomena found within natural setting samples of the family. For our purposes, the description of the innovative situational family is derived from the cybernetic systems model proposed by Mills (1967). The discussion which follows is indebted to Mills.

The cybernetic systems model is a special branch of

general systems theory (Emery, 1969; Bertalanffy, 1969). It is especially useful for organizational and leadership researchers because it attempts to show not static interrelationships, as do some models (Parsons et al., 1953), but the dynamic growth processes and concomitant structural-functional changes which occur (Mills, 1964). The cybernetic model assumes and accounts for change and development (Buckley, 1967). In Mills' (1967) summary of the model, he identifies five phases of growth or stages of purpose: (1) Immediate gratification, (2) Sustaining the group, (3) Pursuing collective goals, (4) Self-determination, and (5) Growth. Each stage focuses on the superordinate goals of the organization or the people within the organization at a given period of time. Each phase may be thought of as having a hierarchical relationship with the other beginning with number one and moving up through five, but the role of leadership within each phase as the catalyst of movement from one stage to another is crucial. As Mills (1967) puts it:

Although accomplishment of a given order of purposes tends to increase the groups potential for advancing to the next higher order, that advance is not automatic or predetermined, but instead depends on the initiative of a member, or members, in conceiving the new purpose, formulating it, conveying it, acting according to it, and having it generally accepted by others in the group...

Seeing the new possibility and then acting on it are relevant, important, and indeed critical to group growth: when done the group shifts to a new purpose; when not, the group remains on the same level of purpose. Consequently, the redefinition and reconstitution of group purposes accor-

ding to new capabilities and opportunities is the... major concern for the [leader] [p. 114, His emphasis].

In Mills' conceptualization, at any rate, is a cohesive methodological Weltans hauung. Not only does it help to understand the purposes of each phase of development and the implicit processes involved in each, but also the central role of leadership within each phase. Using such a systems model, the researcher is in a position to begin the specification of the parameters of the organization or situational family to which he is to attend, and begin the process of empirically identifying the matching or requisite leadership characteristics for the given task-situation. It is in that way that the Mills' model guides this study.

Mills (1967), however, adds more to our theoretical understanding of the multivariate complexity of leadership in situational contexts by specifying the characteristics of leaders with the potential of moving the organization and its members from one phase of development to another. While his description is broad, there is empirical evidence to support it, as we shall see in later sections of this chapter. For now, his description helps to clarify what the researcher might be concerned with. For Mills (1967), then, the innovative leader has the following attributes:

1. Adaptation: Receptivity to a wider range of information about himself, others, his group, and the physical environment. Receptivity to new freedoms, responsibilities, and obligations -- to new roles. Flexibility in modifying his

ideas, beliefs, personal norms and emotional attachments without loss of intellectual or moral integrity.

2. Goal-Attainment: Capacity to postpone immediate gratification, and to conceive of and evaluate an increasing number of avenues for gratification. Capacity to decommit himself from one goal, and to recommit himself to new and additional goals, and to learn how to attain them.

3. Integration: Capacity to perform in an expanded repertoire of roles and a variety of social relationships without suffering diffusion of his identity.

4. Pattern-Maintenance: Capacity for deeper emotional involvement with others without surrendering self. Increasing ability to convey his experience, learning, and capability to others in his group [p. 22].

The guidance such descriptive models give the researcher is important. What remains, however, is still the empirical work to derive exact behavioral specification of the behaviors suggested by the cybernetic model developed by Mills (Golembiewski, 1962). And that is the objective of this study. The focus is on the situational dynamics, as Mills suggests, of an innovative task-situation phase of organizational development. In a sense, that phase is very similar to March and Simon's (1957) characterization of a two-phased model: program elaboration and program execution and their associated leadership requirements. Program elaboration most nearly approximates the innovative task-situation since in that phase new programs and innovations are created and begun. The program execution phase has the main task of efficient and smooth operation of existing pro-

grams. March and Simon (1957) suggest that for each phase different leadership is called for: "...the personality traits required of top executives during such an innovating phase [i.e., program elaboration] are different from the traits required during the subsequent program execution stage. The differences are in the obvious direction -- 'idea man' versus orderly bureaucrat [p. 180]."

When the concept of program elaboration is applied to the school as an organization, it becomes apparent that many of the change efforts over the past two decades fall into the general category, and thus into the category of innovative task situation. The major problem with these change attempts is that too many of them never reached the program execution stage (Silberman, 1970). Most educational innovation attempts dealing with substantive changes in the processes and structure of the schools have failed according to some who have been financially and morally involved (Hechinger, 1972). The reason for failure is laid directly on the role of leadership which was unable to understand the purpose of the proposed changes and lacked the insight needed to work with others for adoption of the new ideas. The school districts enter into a program elaboration phase and because of poor leadership never reached the integration and operationalization phase characteristic of program execution (Hechinger, 1972).

That schools keep trying is beyond question. Numerous

reports and surveys indicate that school systems in most areas in the United States are in the innovative task-situation phase. Van Haden and King (1971) list in their survey hundreds of districts attempting to innovate. Miles (1964) has a major collection of case studies involving attempts to innovate most of which failed, from which one could draw the commonalities needed to identify a situational family. Carlson (1969), Foskett (1970), Eidell and Kitchel (1969), and several other educational researchers have given enough description of conditions within an educational system entering the program elaboration phase, including the normative and organizational factors to abstract those kinds of identities necessary for specifying the characteristics of an innovative task-situation.

It would appear, therefore, that the major theoretical underpinnings needed for this study are in evidence in the sociological and social psychological research literature. And that from the cybernetic systems model and viewpoint guidelines for conducting research are present which allow for consideration of the dynamics of organizational development. It is also clear that previous leadership research has discovered significant factors to be considered, but are limited because they emphasize the static qualities of an organization. The present study, at any rate, is a continuation of the previous studies, and its proposed lines of research have support in the conceptual and methodolo-

gical literature from social science.

A further question remains, however, dealing with what personalities may be influential in an organization desiring change and whether or not personality even plays a part in effective leadership. In the next sections we will consider those two questions beginning with the relationship of personality and leadership.

Personal Attributes and Leadership

In this section and the one that follows our concerns are much more narrowly focused than in the first two sections of our review. In the first two sections we were interested in discovering significant factors from general leadership studies and theories that might influence our present study. We are now concerned, however, with specific research which relates directly to the hypotheses and underlying concepts of this study. As we have described, the central problem of this study is to investigate the functional interrelationships between leadership and a specific situational family, in this case an innovative task-situation which has been described as the beginning phase in organizational development when the direction of change is toward innovation. We are concerned with the derivation, first of all, of potential predictive variables related to the personal attributes of the effective leaders within that situational family. We pose the question in this section

of our review, therefore, of whether or not personal attributes are valid sources of investigation; are there some standardized or regularized relationships between personal attributes and leadership influence? And further we ask: Is there enough consistency of personal attributes within individuals to be able to predict certain behavioral operations of that individual within given situational families?

That personal attributes as a function of leadership is a useful or valid area of study is increasingly being recognized by social psychologists. A decade ago Hemphill et al., (1962) insisted, after a critique of the Ohio studies, that the strength of leadership studies would result from the search for the behavioral interface between personality and situational conditions. More recent commentary has pointed out the differences between the earlier personality studies in the 1930's and today. Dyson et al., (1972) report on empirical work they have been engaged in and conclude that rather than merely looking for pervasive personality characteristics, as the early studies did, the search must move away from simplistic "concern with the traits of the leader to a wider consideration of the complex interaction of leadership behavior, personality, and the situation [p. 29]." In their study, they found that there was a "congruence between different kinds of leadership roles and problem solving situations" and that there are "differences by personality types in different types of decisional situa-

tions [p. 29]." They also found that conformity type personalities arose in situations calling for high structure, and that in less structured situations, nonconformists and more flexible leadership personalities emerged as leaders (Dyson et al., 1972).

The concept of perceptual set and its concomitant personality base has been confirmed in studies over several decades. Most of the work from the cognitive consistency or balance theory school of social psychology, founded on the work of Heider (1958), has demonstrated the relationship between personality attributes and behavior in various situations (Abelson, 1966). The entire conceptual framework from balance theory -- cognitive map, perceptual set, cognitive consistency, dissonance, etc. -- support the idea that people do develop characteristic ways of responding to situations (Abelson, 1968).

It is also possible to specify in more detail the attributes of various personality types. Empirical work started in the early 1950's with the famous study of authoritarian personality by a group of researchers at the University of California at Berkeley (Adorno et al., 1950). Their studies set off hundreds of replication studies which added to our knowledge of personality and behavioral style. While most of the research has now fallen into disrepute due to certain methodological and conceptual failings, it did stimulate, even in its failing, an indepth search for person-

ality characteristics, attitude formation, and the behavioral manifestation of each. One team of researchers, while critical of the Adorno studies, built upon and expanded them. In their report, The Open and Closed Mind (Rokeach, 1960), a clear relationship between the degree of rigidity of personality and cognitive styles and behaviors was demonstrated. The importance of the Rokeach studies was that it demonstrated consistency of response for the personality types described. A rigid mind was characterized as operating from a simple cognitive structure and firmly held belief patterns which achieved cognitive balance by either ignoring discrepant events or distorting the messages to make them fit their cognitive framework. The open mind, on the other hand, has a greater cognitive repertoire and goes through a weighing process when matching situational factors or problems with a set of procedural values rather than a firmly held belief pattern (Rokeach, 1960).

Brown (1965) while confirming the general conclusions of the Rokeach studies, suggests that rather than two separate entities, the open and closed mind should be thought of as a continuum along which an individual could be placed. More importantly, Brown adds the point that cognitive style and behavior are best assessed in their dynamic interaction with situations (Brown, 1965). The work of the balance theorists and the personality research supports the argument posed by Golembiewski and Gibson (1967) and others that per-

sonality must be considered a crucial and central variable in the study of leadership. The evidence from such research suggests not only that there is a consistency in personality patterns and subsequent behaviors but that it is possible to predict behavioral style and thus match desired behavioral style with given situations.

In an innovative task-situation in which the established ways are being changed, in which new roles and expectations are being articulated, where old patterns of relationships and regulations are being swept aside and replaced with the unfamiliar, where there is heightened uncertainty, and where the goals are newly defined, there may be a personality type that is more receptive to the originality and challenge of the innovative situation and more capable of influencing others to move in the direction of the new goals, procedures and expectations. There is little doubt that if a wrong choice of leaders, those without the personal attributes to effectively operate in such an innovative milieu, there could be adverse consequences. In his summary of the relationship of personality and organizational development, Sayles (1964) concludes that "an organization will be affected by the personalities of the role incumbents, and that social structure will be massively influenced by the different qualities of role performance within the behavioral repertoire of the people located in strategic positions in the work flow of the organization... It is en-

tirely reasonable that personality has a considerable import on social structure [p. 65]." And more recently, in his call for a fresh look at the role of personality in organizational settings, Alker (1972) supports the idea that personality and situational variables interact with each other and that to determine effectiveness of leadership one must study that interaction and not merely one of the variables.

A great deal of work has been done on the relationship of the innovative leadership and the organization. In Slater's work (1955) he states that "the choice of role [in a group or organization] is undoubtedly determined by personality factors [p. 626]." And more specifically, he maintains that "...it seems reasonable to expect that rigidity in personality structure will be associated with rigidity of the value structure of the individual concerned ... Such absolutistic value systems, rigidly held and zealously defended will impede" the kinds of problem solving processes associated with innovation [p. 625].

The research reported by Mann (1959; 1961) several years ago in which he found a negative correlation between conservatism and leadership effectiveness has been replicated several times over by more current research with very similar results. In an extended review of the literature of personality and effectiveness, Gallo and McClintok (1968) report that leaders with less rigid personality character-

istics were more effective. They describe such a leader as having the ability to (1) be more alert to factors in their environment, (2) better adjust to new situations and more readily, (3) be more accurate in judging opinions and relevant issues, and (4) give more information and respond to the unexpected in creative ways. Heine (1971) in his analysis of personality and social structure maintains that personality plays a central role in social interactions within social structures. He suggests that people with personality characteristics that allow for greater role flexibility will be more responsive and effective in group situations. This latter finding was early reported by Thibaut and Strickland (1966) whose research demonstrated that people with open personalities are less likely to be conformists and also to be more able to respond flexibly to new situations. Harvey (1961) has consistently demonstrated over the past decade of his empirical work relating personality attributes to organizational functioning, that the open personality is more capable of successful leadership for innovation and adaptability. Finally, Parrott's research (1971) demonstrates that it is possible to both categorize personality types and relate them to given situational conditions.

What we find from this review, then, is that social psychological research on personality and leadership support the following conclusions: (1) personality types are identi-

fiable, (2) personality factors in leadership studies are meaningful only in relationship to situational contexts, (3) those personalities characterized as open, nonconformist, and flexible are potentially more effective in leadership in innovative situations than those with the opposite characteristics, and (4) it may be possible to predict the best potential personality-situation interfaces for organizational development. These studies, therefore, are highly supportive of the approach taken in the present report. It appears that personality is a crucial variable. The question remains, however, as to the processes by which an open personality type leader exerts influence in an innovative task-situation. To gain some insights into that question, we now turn to our last section which deals with the literature from small group research and the risky shift phenomenon.

Leader Influence and the Risky Shift Phenomenon

Our concern in this section is with the potential causes of leader effectiveness in various situational contexts. Much of what is known about this area comes from small group sociology which has been concerned with group interactions for two decades. The significance of the findings of small group researchers for organizational developers and theorists is becoming more and more apparent. Golembiewski (1963) draws direct linkages between the kinds

of exchanges that occur in small groups and those that occur in large, complex organizations. Parsons has stated pointedly that his work on social systems only became complete with the addition of work done by small group researcher Bales (Parsons et al., 1953). Of special interest to us, however, is not the complete findings of small group research, but two specific areas: (1) the sources of leader influence in groups and (2) the results of influence in terms of group decision making. We are concerned with these two areas since we wish to demonstrate that an effective leader is one who is recognized as fulfilling certain needs held by the group and that the normative position held by the leader skews the group in his direction.

One of the very consistent findings of small group literature since the early 1950's is the fact that different kinds of leaders do emerge within a group in response to certain group needs. Two basic kinds of leaders emerge: the task specialist and the socio-emotional specialist. The task-specialist is one who consciously or unconsciously organizes the group and the group's task and then leads it to an effective and satisfying resolution of the task (Hare, 1962). The socio-emotional specialist, on the other hand, is the leader who helps the group maintain its harmony and cohesion, who relieves anxieties and tensions as it proceeds toward task solution (Hare, 1962). The task specialist, therefore, is highly goal oriented while the socio-emotional

specialist is oriented toward group cohesion and harmony (Bales, 1958). In rare instances, an individual may combine both features and is referred to in the literature as a "great man" (Zaleznik, 1966) or a "star" (Slater, 1955).

In an innovative task-situation which is characterized as having great uncertainty and elements of risk, what leadership style is most effective? The answer still is clouded, but the work of small group researchers have some clues. Such a leader must first of all have the personality attributes which allow him to respond flexibly to the needs of the followers (Golembiewski, 1963). A personality with a complex cognitive repertoire is more capable of flexible response than those without such cognitive complexity (Brown, 1965; Sampson, 1970). Such a person is capable of recognizing cues from group members and can respond now in a task oriented way, and now a socio-emotional way (Golembiewski, 1963). A person with cognitive complexity, moreover, is also capable of being more introspective about his own actions and decisions. Zaleznik (1966) calls this process "reality testing." By that he means the process by which the innovative leader matches his behavior to actual group functioning and movement toward defined goals and then works to keep his decisions and actions more congruent with reality. Zaleznik (1966) points out, however, that capability is not typically one that a leader is trained for, more often than not it is merely a functional component of his personality.

If a leader with the capabilities of role flexibility and reality testing actually does accommodate group needs for task accomplishment and cohesion, he is accorded leadership by the group through the processes described by Hollander (1958) which he called "idiosyncratic credit." This process, to simplify the concept, is one in which the leader has assured the group of his commitment to group goals and in fact is a major exponent of those goals through his actions and statements. Once the group has this assurance, it "permits" the leader to move toward more innovative positions and eventually will move toward those positions itself (Hollander, 1958). Empirical weight is given to the idea of idiosyncratic credit by several studies. Crutchfield (1955), for example, found that when a leader reflects strongly and consistently a uniform normative pattern and provides for the group's needs, the followers at minimum adopt the leader's norms and expectations as a standard for consideration. Bowers and Soar (1961) found that leaders with role flexibility and reality testing personality attributes were more able to change teacher behavior in an innovative direction than leaders without those attributes. Bowers and Soar report that the teachers in their study became more open in communication, more adaptive, and more authentic in their dealings with one another.

In other words, when a leader has certain abilities and the group comes to recognize these abilities, the mem-

bers of the group ascribe the leader with "personal power" (Raven, 1965). In an innovative situation, if the leader has the capabilities of reflecting personal strength and confidence, if he appears to be clear about the goals and the processes by which the goals may be attained, and if he is attendant to the socio-emotional needs of the group members that arise from the very uncertainty of the innovative situation, he achieves "independent influence," by which Raven means the influence of his expertise, his consideration, and his expression of expectations (Raven, 1965). In the previous section of this review, we saw that only people with certain personal attributes were capable of those kinds of interactions within a group.

But what specific evidence is available that supports the idea that certain personality attributes have greater influence power in innovative situations? To gain some insight into that question, we turn to another area of research which over several years has developed a set of findings with significant implication for the present study: the investigation of the "risky shift phenomenon" (RSP). The central question asked by RSP researchers deals with determining why a group of people will tend to adopt a much higher level of risk taking collectively than any single member would take individually. The major formulators of the question (Wallach et al., 1968b), define the RSP in the following way: "If members of a group engage in a dis-

cussion and reach consensus regarding the degree of risk to accept in the decisions which they make, their conclusion is to pursue a course of action more risky than that represented by the average of the prior decisions of each individual considered separately [p.1]." In other words, the RSP study is concerned with determining why a group faced with a risky or innovative situation will tend to adopt greater risks as a group than any single individual would have.

Although several explanatory hypotheses have been posited over the past ten years of investigation, the influence of the risk taking individual in the group has become the most valid and empirically sound explanation. Using a single variable, the influence of the individual with high risk taking scores, early work tended to confirm the hypothesis that the influence of the high risk taker did indeed explain shifts toward risk in groups (Wallach et al., 1965). Later work, however, brought that finding into question when it was found that merely discussing the issues on which decisions had to be made was sufficient to cause a group shift toward risk (Wallach et al., 1968a; Kogan and Wallach, 1964). One study, however, led to a reinvestigation of the individual influence hypothesis. In reporting that the individual influence hypothesis was insufficient as an explanation of RSP, Wallach et al., (1968b) offered data derived from a study of matched member groups

in which all of the members had a high penchant toward risk taking. No RSP occurred for most of the groups, leading to the experimentors' conclusion. Reanalysis of the data, however, revealed a significant oversight. One of the groups, composed solely of female subjects, did show RSP. The difference between them and the male groups was that the women scored high in extraversion. This reanalysis, therefore, led to a number of research studies which were multivariate in nature and which the working hypothesis was again the influence of the individual on group decision making.

The outcome of those efforts was significant corroboration for the fact that individuals with a penchant for risk taking have more influence on group decision making than nonrisk taking individuals when the situation is defined as innovative or risky. Rim (1964, 1965), for example, found positive correlation between high achievement motivation, extraversion, and high risk personality factors and influence within groups. As the flow of information about the risky situation takes place, the risk taker influences the group toward greater risk (Harnett et al., 1968). Zajonc et al., (1968) found that if the risk taking individual has a generalized attribute of risk taking before entering the group, the degree of risk taken by the group tends to be higher. That is, when an individual is administered a personality inventory and displays a high penchant toward low caution or high risk, he generally is more

influential on the group's decision making. Madaras and Bem (1968) compared the effects of conservatives and risk takers on group decision making in risky situations and found that the risk takers were significantly more influential except on matters that were concerned with high moral values, in which case both risk takers and conservatives shifted toward more conservative decisions. In still another study, it was found that the "extremist" member of the group influences the entire group to become more salient with his views (Boise, 1960). Burns (1967) found that an individual with the personal attributes of both extraversion and high willingness to take risks was the most significant factor accounting for RSP.

Especially important for this present study are two other research reports. Since we are interested in one generic situational family in this dissertation, the innovative task-situation, and the influence of leaders with certain kinds of personal attributes, definition of the situation in RSP studies are important (Kogan et al., 1972). The first study, then, (Jellison et al., 1972) was a direct test of the situational factors in risk taking. The study concluded that when the situation is defined as an innovative situation, the high risk taker had more influence on group decisions and, moreover, the group ascribed to the risk taking individual more expertise and authority. Thus, the Jellison et al. experiment demonstrates not only effec-

tiveness of an innovatively inclined leader in a normative climate conducive to innovation, but also that within such a situation, the group comes to recognize and accept the leadership abilities and influence of the innovator. That finding is also corroborated by the findings of several small group researchers (cf. Raven, 1965; Golembiewski, 1963). Brown (1965) also supports the idea that the normative climate of innovation is an important factor in the influence of the innovatively inclined leader within the group.

The second important study dealt with the interaction of several factors in determining the causal explanation for RSP (Ellis et al., 1969). This study reports that in a normative high risk or innovation situation, the single most important influencing factor on RSP was that of the individual with a high propensity toward risk. The importance of the Ellis et al. finding or conclusion is that the experimental design of the study attempted to test several variables at once which had been offered at one time or another as explanations for RSP. No other explanation was as significant as the individual influence hypothesis. The result of the RSP studies, then, appear to support the idea that certain individuals with personalities which make them more prone toward innovation and flexibility and operating in an innovative normative climate, are most likely to influence others toward innovation.

Small group research has demonstrated that members of a group will ascribe certain leadership qualities to individuals who display needed skills and expertise. Such research has also shown that in situations in which there is great uncertainty or when change is occurring that the individual with the personal attributes which allow him to respond flexibly to the needs of the group, and projects expectancies conducive to innovation, is the individual who is ascribed leadership by the other members and who gains influence through his expertise and personal authority. From the RSP research we see that the normative climate is an essential factor in determining the influence of a leader. If the climate is supportive or encouraging of innovation, that individual who has personal attributes giving him a penchant toward change, risk, and innovation will be more influential if he also has the attribute of extraversion. All of which is to say that it is possible to match individuals with innovative personal attributes to innovative task-situations and that those individuals are most likely to succeed.

Summary. From this review of the literature related to leadership, several conclusions may be drawn which indicate that the approach being taken in the present study does have empirical and theoretical support. These conclusions will be listed here and alluded to throughout the remainder of this study. In that way, these statements become

assumptions underlying the specific research reported in the subsequent chapters.

1. Leadership is a dynamic process of interaction between the leader, the followers, the nature of the task, and the requirements of the situation.

2. Leadership style is contingent on the personal attributes of the leader and that while there may be secondary styles, the leader's dominant style determines his effectiveness in given task-situations.

3. There is a consistency of perceptual set which is influenced by personality and which gives rise to patterned behavior in group settings.

4. Leadership role flexibility and responsiveness are qualities found only within people with certain personalities and are not pervasive to all leaders nor necessarily skills that a leader can acquire through training.

5. Situational demands and requirements are major determinants on the effectiveness of leadership.

6. Identified commonalities make possible the labeling of a variety of situational families each of which require different leader types.

7. Given the definition of the situation, group members will ascribe expertise and authority to individuals who display certain behaviors and attitudes and thus make such individuals more influential on decision making processes in the group.

8. As an organization attempts to adapt to new goals, processes, and products, there are recognizable phases or steps through which it passes.

9. The initial phase in organizational development, called here the innovative task-situation phase, is that in which a problem has been recognized and in which preliminary steps are being taken to move the organization toward newly defined goals, processes and/or products, but within which many individuals are either resistant to change or neutral, making the change attempts risky and threatening, along with a general attitude of uncertainty.

10. In uncertainty or innovative situations, leaders with a penchant toward innovation and sensitivity towards others will tend to be more successful than individuals without those personal attributes; this individual will tend to be more successful since he will have internalized the goals of innovation more than others and therefore have a strong commitment to them. He will also forcefully communicate and model his expectations, and thus will tend to mitigate feelings of uncertainty in his followers.

The research reported tends to support these assumptions at least to the extent that they may serve as guidelines for further testing such as in the present study.

C H A P T E R I I I

P R O C E D U R E S

The Organizational Setting and the Sample

An essential step in the use of situational testing for the development of effective leadership prediction criteria is the identification of a natural setting which matches as closely as possible the specifications of the situational family to be investigated, in this case the innovative task-situational family. Some time will be spent, therefore, on the description of the organization that was chosen as the criterion situation to establish both the situational factors influencing leadership behavior and to describe the leadership sample used in this research in situ. The point here is to establish the fact that the organization had attempted to control forces that potentially might block innovation, thus obviating several confounding factors, and that leadership was still not entirely effective. It is on that point that our hypotheses were developed.

For this study, at any rate, a school district was selected which had been judged by several independent agencies to be the best of the ten superior school districts in the United States. A few years ago, for example, the Office of Education engaged the Arthur D. Little Corporation to independently investigate several leading school systems in the country. On the basis of the district's

comprehensive and systematic change model, its decision making processes and structure, its staff utilization plan, and its management model, it was judged the most outstanding in the nation (Little, 1972). Other less direct indicators of superiority may be seen in the fact that the district of this study has been the subject of more articles in journals, magazines, and books than any other district of comparable size (English and Sharpes, 1972). Because of its exemplary change model, the district has been visited by educators and officials by the thousands and from foreign dignitaries (Boutwell, 1972). And because it represented a chance to demonstrate a comprehensive approach to educational innovation, the district received over \$2,000,000 worth of support in a four year period from both federal and private foundation support (Boutwell et al., in press)*

The efforts the district made to facilitate change and effective leadership were as extensive and systematically comprehensive as any described in organizational literature (see, inter alia, Lippitt, 1969). The ultimate goal of the district, however, was not merely to implement new staffing patterns or build new classrooms nor introduce new scheduling patterns or other structural changes, although it did do all of those and more. Its primary goal

*Most of this descriptive data comes from inhouse documents and personal interviews with key personnel of the district.

was to develop a professional staff that was capable of self-renewal, to develop a curriculum that was flexible in meeting the socio-personal needs of the children of the district, and to maximize individualized instruction. All of the decisions the district made regarding the change model were justified on the basis of accomplishing the ultimate goals listed above.

The comprehensiveness of the model was one of its strengths. It included, for example, an exemplary differentiated staffing plan which attempted to maximize the utilization of teacher expertise and match recognized talent with specialized tasks. It also outlined a shared decision making structure to maximize participation in decision making by all of the members of the professional staff. When implemented the change plan caused the remodeling of the physical plant and new building to be built to accommodate flexible use of time and space. New scheduling procedures were started to eliminate artificial constraints to learning experiences. The financial and other support systems of the district were managed to be directly supportive of innovation and organizational development and facilitate effective leadership functioning. The district also had developed a sophisticated linkage system to outside agencies, such as universities, research laboratories, and other research and developmental practices within the district. (Boutwell et al. In press).

The normative climate of the school organization of this study received just as much attention as the more objective aspects of organization change. Role definitions of the traditional holders of position power were changed to reflect the drive for shared decision making and teacher-leadership. Participatory goal setting, planning, and performance evaluation were means of matching behavior with the newly projected normative values. Teachers, teacher-leaders, and administrators participated equally in all phase of development and evaluation of programs and the evaluation of those in leadership positions. To avoid the subjective evaluation procedures so typical in American schools, each role in the district was described in behavioral terms and such statements were used as objective discriminators of the performance of teachers, teacher-leaders, and administrators. The general normative climate of the district was geared to the values of McGregor's (1967) Theory Y: valuing humanism, participatory decision making, etc.

The general operational goals of the system were those associated with the concept of open-systems: the development of a professional staff and organizational matrix with the capabilities of creative and rational problem solving and growth, and with the skills and insights needed to identify and attend to any structural changes necessary to accomplish new curriculum and instructional practices. In

other words, the district wished to become what we have described earlier as "a healthy organization" (Miles, 1965).

Through both its structural changes to accomodate effective leadership performance, and with its supportive normative climate, and its financial support system, the district of this study had made a total commitment to change and renewal. The professional staff consisted of twenty-five teacher-leaders, the subjects of this study, three central office administrators, six principals, one hundred and forty three staff teachers, and a large number of paraprofessionals. Through planned survey feedback processes, the teaching staff had consistently indicated over the five years of development its commitment to moving toward the innovative goals of the organization. Most, however, also expressed some concern with their ability to meet the new expectations and their lack of knowledge of the specifics of the new goals. The few resistors in the district were in informal leadership positions or were alienated from most factions in the district. They resisted from the standpoint of rational dialog, for the most part, with the typical arguments revolving around the speed of change rather than the substantive content of change. Most of the teaching staff could be classified as neutral in the sense that they were receptive to leadership moves, but were not self-initiating.

The community, too, was generally supportive of the

attempt to renew the schools. The school committee was at first reluctant to move rapidly for innovation and established a planning committee made up of representatives of the community and various organizations, including teacher organizations. This committee spent one and a half years researching the implications of change and involving the general community in planning and goal setting. The community itself was primarily a white, middle class bedroom community. In a poll taken at the beginning of the planning, all of the parents were surveyed regarding the proposed substantive elements of the curriculum and instructional goals. Over 1750 returns from the 4350 sent out indicate firm support for the overall goals, while differing slightly on certain specific goals. Students were also included in the poll as well as the entire teaching staff. On the major or fundamental proposed goals, there were little differences between any of the groups. In these ways, therefore, community interests and participation became an ongoing factor in decision making. At a later point in development, joint teacher-parent committees were established to flesh-out the global goals into more specific and behavioralized objectives. Parents also participated in an on-going control body. At the beginning and early phases of the development, then, the community was intimately involved.

One of the more important components of the planning

model dealt with participatory decision making. Obviously, if such a decision making pattern was to come about, the district had to change its traditional authority roles. With the cooperation of the principals and the central office personnel, the planning committee developed a new decision making pattern by redefining the role expectations of each major role in the district. The principal's role in particular changed significantly. He no longer was the main evaluator of teacher performance and was not considered the curriculum leader of the school. He along with selected teacher-leaders made up a decision making board within the school. The board made all decisions for the school -- financial, curriculum, evaluation, and so forth -- as a collective body. The teacher roles were also changed to include a hierarchy of teaching class ranging from the least experienced classroom teacher, through the more experienced, and then to teacher-leaders (the subjects of this study) who became the curriculum and instructional leadership cadre within each school.

Certain principals did not agree with the new roles and left the district. Those who replaced them were aware of their new roles and, based on interviews, the remaining principals felt the new relationships were better than the old. Thus, the principals generally supported the shared decision making processes. On the district level, the central office personnel, including the superintendent, accepted

the same role within a district policy making body. This new structure was approved by the school committee and functioned from the beginning.

The district, at any rate matched quite well the construct definition of an innovative task-situation in its three major dimensions: the normative climate, the nature of its goals, and the nature of its followers. Within the system twenty-five classroom teachers were selected through well defined behavioral criteria to become teacher-leaders. For that position they received extra compensation, equivalent to a principal's salary in most cases, but in other cases the equivalent of an assistant superintendent's, depending upon the definition of their tasks. The teacher-leaders were considered the primary change agents and all of the facilitating measures in the change model were geared to their effective functioning. The teacher-leaders were expected to be exemplary teachers, skilled in the new behaviors and problem solving processes they were to help the staff teachers develop. They were to be knowledgeable of new curriculum theory and practice. They were to be skilled at the application of human relations training processes. Their main task, in other words, was to bring about changes in the behavior of the classroom teacher, to move the staff toward commitment and understanding of the new goals, and to work with the staff teachers in the development of new curriculum and teaching practices.

Each teacher-leader worked with a small group of followers, usually five but in one case eight. They were also members of district-wide instructional councils and decision making bodies which gave them instrumental position power and influence on policy making, goal setting, and the allocation of resources (Boutwell, 1972).

Before being selected for leadership, each of the candidate teacher-leaders received extensive training during the school year before implementation of the new plan and into the summer. The training programs had several components: some were designed to develop generic leadership skills such as human relations training, group problem solving techniques, team building, and so forth; others were designed to give information and practice in new curriculum and instructional practices such as microteaching, criterion referenced evaluation, interaction process analysis, individualized instruction and process oriented curriculum. Out of the forty candidates, twenty-five were finally selected by a screening committee composed of a campus administrator, the curriculum director, and three members of the teaching staff with whom the teacher-leader would be working. Except for three who left the district, all of the teacher leaders in this study had been in their positions for at least two years. They were evaluated in each of those years on the basis of behaviorally defined criteria. They were evaluated primarily by their followers. It was that body of teacher

leaders who were expected to be the catalysts for change in the district and toward whom the resources of the district had been directed.

With all of these efforts, however, after five years of training and developmental work, with an extensive and systematic teacher and administrative training program, and with the expenditure of millions of dollars, the system's goals were not accomplished. In many ways the goals were not even approximated in any substantive way, except for some glaringly obvious exceptions, when judged by independent evaluators. Most of the changes that did occur were in the structural components of the district -- the staffing plan, the new buildings, new schedules, etc. -- and not in the areas considered by the central administration and the district planning board as super-ordinate -- the curriculum, instructional processes, and staff growth. Some of the teacher-leaders, however, had moved toward the substantive goals of the district and had achieved remarkable successes. One leader worked with his team on the development of an open-space approach; another developed an alternative school within a school; another worked with his followers to develop a process oriented multidiscipline program, and so forth. For most of the teacher-leaders, however, the curriculum and teaching patterns remained exactly as they were at the beginning of the five year effort. The concern of the administration and planning board was centered on why some achieved

the substantive goals and most failed.

The school system selected for this study, therefore, is a close match to our definition of an innovative task-situation organizational phase. Two factors make it important for this investigation: (1) The comprehensiveness of its planning and facilitating leadership, and (2) The failure of most of the leadership. This allows for concentration on the personal attributes of the teacher-leaders as a potential source of failure, as is hypothesized in this study. If the failure of the district can be related to the inappropriateness of certain personal attributes of the leadership cadre, and these factors can be isolated, it may be possible to predict effective leadership for innovative situations on the basis of the derived criteria.

For this study, then, twenty-two teacher-leaders composed the sample population, the remaining leader cadre when this study was begun. There were sixteen males and six females. The mean age was 39.2 years and mean years experience 11.7 years. Nine of the subjects had only bachelor degrees, nine had some advanced work, and four had beyond masters work. Eight of the subjects dealt with elementary staff teachers and the remainder were in the secondary levels. All of the subjects had been classroom teachers before the new program was implemented and all had received exactly the same training program during the school year and for two months during the summer. All had been

screened before selection to their positions and all had stated their commitment to the goals of the district. From the sample group were identified nine effective leaders and thirteen ineffectives.

In the next sections will be described the processes by which the effective and ineffective groups were established and how the data were collected regarding their attributes.

Data Collection and Instruments

The district of this study had employed the change strategies generally called "socio-technical" which can be seen in their attempts to orchestrate both structural and personal change strategies (Trist et al., 1963; Lippitt, 1969). The role of leadership in that approach is crucial, thus the failure of a large number of the teacher-leaders becomes an appropriate focus of study within such a highly committed district. The collection of data, therefore, is restricted to information about the personal attributes of the teacher-leaders since it is assumed that each received identical training and had equal support facilities to tap.

The first step in data collection was to gain a more objective discrimination between the effective and ineffective leaders. To accomplish this, the author analyzed the behavioral descriptions of expected leader performance, the evaluation instruments used to rate leaders, and the written

statement of district goals and their associate policy statements. From this analysis a Likert-type scale was developed which sought data in five areas: (1) How well did the teacher-leader establish rapport with his followers; (2) What substantive changes occurred in the curriculum and/or instructional behaviors of the followers; (3) How comprehensive were the curriculum changes suggested by the teacher-leader; (4) To what degree were the available support resources utilized by the teacher-leader; and (5) What initiative was taken by the teacher-leader to identify his own training needs. Through an iterative technique, these statements were clarified and refined, with the help of the teacher-leaders and the central office personnel, until both groups were satisfied that they represented the ideal expectations based on the district's goals. The survey instrument was designed, as may be deduced from the categories listed, to gain insight into the socio-emotional abilities of the teacher-leaders, their task oriented abilities, his recognition of his own limits (reality testing), and his recognition of available resources.

Once the rating instrument was agreed upon, the next step was the selection of judges. The major criteria for the selection of the judges were: (1) They had to be in positions which allowed them to be familiar with the goals and operation of the entire system, and (2) They had to be directly familiar with the practice of the teacher-leaders

over a period of time and with the followers of the teacher leaders. These criteria led to the selection of three judges: the special projects director, the district training officer, and the curriculum specialist. Each was separately instructed on the use of the rating instrument and assured of anonymity for themselves and the results.

As a cross-check of the instrument, but not as a primary data source, the teacher-leader cadre was asked to complete the rating instruments for their peers. The independent judges rating, however, was the sole criterion for establishing the dichotomous groups.

When the judges' scores were computed, nine of the teacher-leaders received perfect scores in all categories. From discussion with the judges later, it is speculated that the nine received "perfect" scores as a result of the judges' contrast of their performance with the other teacher-leaders. At any rate, such a discrimination was sufficient for the purposes of this study, since what was sought was dichotomous categories, which is accepted as a process by regression analysis researchers (Hill and Kerber, 1967). Interestingly enough, the peer group rating gave the same nine the highest scores.

Based on the judges' rating, the nine high scorers were designated the "effective leaders" and the remainder designated the "ineffective leaders." Since the organization had made such comprehensive attempts to facilitate

effective leadership, thus eliminating or obviating several potential confounding variables, it was hypothesized that the reason for the different effectiveness scores related to the personal attributes of the leaders. According to our review of the research, data needed to be gained regarding the leader's personality, his attitude toward innovation, his degree of cognitive openness, and his attitude toward leadership functioning. The second data collection process, therefore, was concerned with collecting information about the personal attributes of each of the teacher-leaders. A review of the standardized instruments in the 1970 Mental Measurement Yearbook and consultation with measurement experts led to the selection of the following instruments for data gathering:

California Psychological Inventory: This inventory is designed to yield data which indicates how a person characteristically behaves in various situational contexts.

Ross' Educational Philosophy Inventory: This inventory is designed to yield data indicating the degree of openness or rigidity in the subject's cognitive set as determined by his conscious indication of philosophical beliefs.

Gordon's Personal Inventory: This inventory is designed to yield data which indicate the degree a subject tends to seek the unfamiliar and more creative or more standardized, familiar tasks.

FIRO-B: This inventory is designed to yield data regarding the degree of interpersonal interactions a subjects desires.

One additional data collection step was taken. Over several decades of research, sociologists have been inves-

tigating the relationship of personal attributes and inclination toward innovation. They have developed a number of generalizations descriptive of the innovatively inclined individual based upon their empirical data (Rogers, 1971). These generalizations, most developed from rural sociologists' work with farmers, indicated that the innovatively inclined person tends to be younger than his peers, more highly educated, male, more upwardly mobile, newer on the job, and more cosmopolitan (that is, having more contact with information sources outside his immediate circumstances). Such work, it was felt, could not be ignored as a potential source of explanation for the effectiveness of some of the teacher-leader subjects. A socio-data form was developed to collect the information in the nine categories. These data are shown on Table 1.

Each of the inventories in Table 1 and the socio-data forms were completed by the subjects at a special meeting in the district training room. Each subject was paid a small fee for attending. They were assured that the data would be held confidential. Each instrument was administered in the prescribed way according to the directions in the manuals. Three hours was allotted for the task, but most of the subjects were finished in two hours.

TABLE 1
A BIODATA COMPARISON OF EFFECTIVE AND
INEFFECTIVE TEACHER-LEADERS

Data Category	Effectives (N=9)	Ineffectives (N=13)	Total N
Males	7	9	16
Females	2	4	6
Mean Age	34.3	42.5	39.2
Education			
BA	5	4	9
MA	2	7	9
MA+	2	2	4
Mean Years Experience	8.7	13.7	11.7**
Elementary	4	4	8
Secondary	5	9	14
Upward Social Mobility:			
Yes	6	5	11*
No	3	8	11
Mean Cosmo- politanism	7.2	5.1	5.95

*Trend

**P .05

Data Analysis Procedures

Each inventory was scored and the individual inventories correlated using Pearson Product Moment techniques. The biodata were also correlated for effectives and inef-

fectives. The level of significance adopted was the .05, two-tailed test. The significantly different effective leader attributes were isolated. The next analysis procedure was to eliminate the ineffective scores, since the objective was to develop criteria of effective leadership which made only the personal attributes of the effectives meaningful for further treatment. The significant variables related to effectiveness were tested for independence. The final step was to treat the data using regression analysis procedures incorporated into the TEXREG computer program. The aim of this step was to determine the most significant variables of effectiveness which could be used for both a prediction equation and potentially as identification criteria for educational decision makers. The regression significance level was established at the .01 confidence level with an R^2 of .65 associated with a significant F statistic, as determined from an F table, for that R. It was felt that this high level of significance was necessary to minimize the effects of sample size and the possibility of measurement artifact. In the Result section which follows more comments will be made regarding the problems of measurement.

CHAPTER IV

RESULTS

Since we are concerned in this study with the derivation of effective innovative leadership criteria, the report of the results in this section deals only with the factors identified as significant. For a review of the complete data for the effective teacher-leaders, consult Appendix A.

At any rate, the data revealed by computation for Pearson Product Moment correlation (programmed for an IBM 360 computer), showed several variables at a significance level of .05 or better, as shown of Table 2 on the following page.

In all other regards, the effective teacher-leader subjects were not significantly different from the ineffective. Our data reveals an effective teacher-leader as having the following specific attributes as abstracted from the categorical descriptions in our standardized personality and interpersonal inventories:

Years Experience: The longer one teaches, the less innovative he is likely to be. The data show that the effective leader had 8.7 years of experience while the ineffective had 13.7 years of experience. These data corroborate the similar findings of sociological investigations of innovation (Rogers, 1971). It is of interest to note that none of the other biographical factors reached a significant level. Rogers (1971) apparently was correct in

TABLE 2
 SIGNIFICANT PERSONALITY VARIABLE CORRELATED
 WITH INNOVATIVE LEADERSHIP EFFECTIVENESS

Personality Inventory	Variable Name	Correlation	P
Biographical Data	Years Exper.	-.49	.02
Gordans Personal Inv.	Cautiousness	-.43	.05
Gordans Personal Inv.	Original Thinking	.49	.02
Calif. Personality Inv.	Social Presence	.52	.02
Calif. Personality Inv.	Communality	-.45	.05
Calif. Personality Inv.	Psychological Mindedness	.61	.01
Calif. Personality Inv.	Good Impression	.44	.05
Ross Educ. Phil. Inv.	Idealism	.48	.02

his comments about organizational factors skewing the results obtained by rural sociologists. At any rate, the factors of upward mobility and age did reach the trend levels, but were not considered further due to the limitations on interpretation resulting from sample size. We felt that only those variables achieving significance could be considered for further treatment.

Cautiousness: With a negative correlation for effectiveness, this factor again corroborates the findings of the risky shift researchers that in a normative climate of innovation, the individual with a personality which inclines him toward risk or innovation will be more influential. From our behavioral categories, a low caution person is impulsive, seeks excitement, enjoys taking risks, and is innovatively inclined.

Original Thinking: High scores on this variable indicates an individual who enjoys working on difficult problems and seeks creative answers to problems. He is also intellectually curious and is willing to place himself in situations which challenge him. This variable, then, is opposite of the caution variable and it is not unusual to see high significance with it.

Social Presence: This variable is an indication of extraversion. It summarizes such personal attributes as enthusiasm, imaginative, and spontaneity. As with the RSP literature, it demonstrates that originality, willingness

to take risks, and extraversion are all interrelated factors in the influence function.

Communality: This factor measures the individual's reaction and response to situational factors in comparison with commonly accepted modes of behavior. Scoring low on this variable, then, as the effectives did, makes it likely that they are independent, and perhaps changeable, but not at any rate a follower of accepted pattern. Again, this indicates a penchant toward innovation.

Psychological Mindedness: With a very high positive correlation this variable seems strong in its indication of relationship of effectiveness and the behavioral elements within psychological mindedness. Those elements include authenticity, the ability to establish rapport, and sensitivity to others. It would appear that there is some relationship between the effectives being rated high in rapport on the sociometric instruments described earlier and this factor.

Good Impression: This variable is an indication of outgoingness, social warmth, helpfulness, sensitivity to others, and similar attributes. It would indicate that the effective leader desired the ascription of friendliness and esteem of his followers.

Idealism: This variable measures the degree of authoritarianism held by an individual. Authoritarianism is characterized by rigidity of beliefs, simple cognitive repertoire,

and unwillingness to change. With a strong negative correlation, it appears that the effective leaders in our study were equalitarians, eclectic, and pragmatic in ideology and operation. This factor again suggests a relationship with those of original thinking and negative caution, thus giving more shape to a complex cognitive set.

Because several of the significant factors from the initial treatment appeared similar in connotation, the next analysis was a correlation of the variables for a test of independence. As can be seen in Table 3, almost all of the variables had some confounding. Years experience appears to be the least powerful or independent variable since it is the most confounded. Communality, on the other hand appears to be the most independent. Psychological mindedness appears to mean the same in connotation as certain other factors, while caution and good impression appear relatively unconfounded. The test of independence demonstrates the caution the researcher must take when working with psychological inventories and variables.

To gain a weighted indication of the influence of the eight significant variables, the next analysis was a stepwise regression. Since the primary objective of the study was the identification of factors or attributes discriminating effective from ineffective leaders in a defined innovative situation, the regression procedures were chosen since they compare and weigh the relative influence of each

TABLE 3

TEST FOR INDEPENDENCE OF VARIABLES OF EFFECTIVENESS

Variable Name	Yr. Exp.	Caution	Orig. Think.	Soc. Per.	Comm.	Psy. Mind.	Good Imp.	Ideal.
Yr. Exp.	1.00	.15	-.57**	-.61**	.33	-.54**	-.31	.57**
Caution	.16	1.00	.05	-.43*	.11	-.03	.08	.28
Orig. Think.	-.57**	.05	1.00	.41	-.07	.56**	.32	-.20
Soc. Per.	-.61**	-.43*	.41	1.00	-.13	.39	.03	-.42*
Comm.	.33	.11	-.07	-.13	1.00	-.37	-.23	.32
Psy. Mind.	-.54*	-.03	.56**	.39	-.37	1.00	.50*	-.20
Good Imp.	-.31	.08	.32	.03	-.23	.50*	1.00	-.22
Ideal.	.57**	.28	-.20	-.42*	.32	-.20	-.22	1.00

NOTE: Abgreviations: Yr. Exp. = Years Teaching Experience; Caution. = Cautiousness; Orig. Think. = Original Thinking; Soc. Per. = Social Presence; Comm. = Communalilty; Psy. Mind. = Psychological Mindedness; Good Imp. = Good Impression; Ideal. = Idealism; * = p .05; ** = p .01.

variable with each other and in relationship to the dependent variable, in this case effectiveness.

The regression process is also useful for the isolation of coefficients needed for formulating a prediction equation useful for further research into the potency of the derived effectiveness criteria. The prediction formula for this study was as follows: $Y_x = \text{Constant} = b_{x_2} + \dots$

The elements are: Y_x is the predicted score after taking all of the significant variables into account. The range of the Y_x will be between 0 and 1 since we are operating in this case with dichotomous categories, effectiveness/in-effectiveness. The closer a score comes to 1, the higher the chances are for a prediction of effectiveness. Since, however, this study is exploratory and the sample is small, we are reserving making statements about the predictive validity of the derived coefficients until further study.

The other symbols in the formula are b , which is the beta coefficient for a particular variable when, taken together, provides the slope of the regression line as shown in Table 4. X_1 and X_2 are the variable names; that is, the exact score the subject receives after he has taken the required inventories.

A comment is also in order regarding the computer program used to manipulate these data. The TEXREG program performs several functions which eliminate the need for sub-treatment of the data. For each variable in the stepwise

TABLE 4
 FULL EFFECTIVENESS PREDICTION MODEL

Variable Name		Mean Variable Score	Coefficient (b)	T-Value*	Probability Level
Yr. Exp.	X ₁	11.5	.125639	.724	.482
Caution.	X ₂	52.8	-.0079313	-2.190	.047
Orig. Think.	X ₃	64.0	.0029389	.939	.365
Soc. Pre.	X ₄	38.7	.0217858	1.144	.273
Comm.	X ₅	25.4	-.0598118	1.922	.077
Psy. Mind.	X ₆	13.4	.0497909	1.327	.207
Good Imp.	X ₇	20.2	.0245904	1.380	.190
Ideal.	X ₈	1.5	-.0114415	-1.154	.269

$$R^2 = .81$$

*Note: T-test were two tailed

process, for example, a net regression score is computed. Essentially, this process allows for not only a weighting of each variable vis-a-vis the dependent variable, but with each of the other variables additionally. In that way, the researcher receives data about the relation of " X_1 to X_2 and X_3 , respectively, excluding, or net of, the associated influences of the other independent variable or variables [p. 154] (Ezekiel and Fox, 1959). In this way one more clarification of the influence of each of the variables occurs and the stepwise procedures followed by the process of elimination of the least significant variable both in its gross weight in relation to Y , and its net weight. The resultant coefficients, therefore, are those with the strongest combined weight (Ezekiel and Fox, 1959).

The TEXREG program also provides a constant which adjusts the regression line to the Y axis in order to produce the best prediction equation. For this study, however, that function was not necessary and thus the constant was zero.

The full model, at any rate, produces a prediction equation which accounts for over 80% of all the fluctuation in the scores with an R^2 of .81 with an F of 5.8196 (p . .005). Table 5 shows the analysis of variance for the full model. If this study was one in which replication had eliminated the serious shrinkage problems implicit in all regression analysis, the power of the R^2 in association with the F

statistic shown would be quite sufficient for prediction validity. Since, however, the sample population was small,

TABLE 5
ANALYSIS OF VARIANCE: FULL PREDICTION MODEL

Sources	df	S.S	MS	F
Total	21	8.0000		
Due to Reg.	9	6.5088	.7231	5.8196*
Error	12	1.4912	.1243	

*p .005

a prediction model was selected which had the strongest variables. Thus the last stepwise in the regression process shown in Table 6 was chosen for our model.

TABLE 6
BEST LEADERSHIP EFFECTIVENESS PREDICTION MODEL

Variable Name	Mean Variable Score	Coefficient (b)	T-Value	Probability Level
Psy. Mind. X ₆	13.4	.0740892	5.166	.00006
Caution X ₂	52.8	-.0111833	-3.270	.0040

$R^2 = .67$

For this model in Table 6 the F statistic is the most significant since the further that statistic moves away from 1

the more significant and reliable is the R^2 and consequently the predictive validity of the coefficients. The analysis of variance in Table 7 demonstrates this.

TABLE 7
ANALYSIS OF VARIANCE; BEST PREDICTION MODEL

Source	df	S.S	MS	F
Total	21	8.0000		
Due to Reg.	2	5.3554	2.6777	19.2375*
Error	19	2.6446	.1392	

*p .001

It appears, therefore, that lack of caution, willingness to take risks, and inclination toward innovation are significant factors in effective innovational leadership. It also appears that psychological mindedness, which indicates traits associated with the ability to establish rapport, is the second important factor.

It would appear that the data support the hypotheses posed in this study:

1. There will be significant differences in the personal attributes of leaders judged effective in an innovative situation when compared with leaders judged ineffective in the same situation when measured on standardized personality and interpersonal orientation measures.

2. There will be significant differences in the willingness to take risks, interpersonal sensitivities, and desire for originality between

leaders judged effective and those judged ineffective in an innovative situation when measured on standardized personality inventories.

Our data show that for hypothesis one there was support at the .01 level. In our second hypothesis, however, are subelements which need further comment. "Interpersonal sensitivities" refers to the leader's capacity to empathize with his followers to the extent that he is aware of their feelings of anxiety or uncertainty. In the CPI the factor labelled "psychological mindedness" is exactly the attribute of interpersonal sensitivity as mentioned in the hypothesis, and at the .01 level has great significance in relationship to leader effectiveness in the situation we have been using as baseline. The element "take risks" was supported at better than the .05 level, but "desire for originality," appears to be the same factor as others as may be seen in the test for independence and its significance is unclear. In our regression analysis, however, the factor "caution" appears to combine the risk taking and originality desire attributes and shows them in negative terms (-.01). For the subjects of this study, at any rate, it would appear that there are significant differences in personality or personal attributes between the leaders rated effective and those rated ineffective.

However, we cannot end this section on results without reiterating the caveat found throughout this study; namely,

that our confidence in the findings is severely circumscribed by the knowledge that the use of criteria derived through regression analysis have very limited utility when only one sample population has been used to derive the prediction equation. As Ezekiel and Fox (1959) point out: the results of regression analysis when one sample population is used to derive weighted factors related to the dependent criterion, "may be expected to hold true only within the range covered by the bulk of the observations upon which they were based [p. 184]." Other researchers (Hill and Kerber, 1967) point out that regression analysis is dependent on predictive validation: "Predictive validity is determined by evaluating how well predictions made from the data-gathering instrumentality are confirmed by evidence collected at a later time [p. 285, Their emphasis]." We are not willing, therefore, to claim definitive criteria for effectiveness in innovative situations as a result of this study. On the contrary, as we have suggested throughout this study, with the limits intrinsic to regression analysis, the best we can say is that we have an indication of the behavioral criteria of effectiveness from our sample population for use in subsequent research efforts.

We conclude, therefore, that for production purposes, the model shown on Table 6 and supported by the analysis of variance data on Table 7, is the most prudent for subsequent use. We draw this conclusion because of the relation-

ship of the F statistic to the R factor. As Hill and Kerber (1967) point out, as the F statistic moves away from 1.0, more confidence can be placed in the data and less chance of artifact explanation resulting. With a F of 19.2375 and an R^2 of .67, therefore, the best prediction model will utilize the factors of psychological mindedness and negative caution as the criteria of effectiveness for innovative task-situations. Their true validity as predictors, however, can only be demonstrated once the effects of shrinkage have been computed, which can only occur in further studies in similar situational contexts.

C H A P T E R V
DISCUSSION AND CONCLUSIONS

Summary of the Study

This study has been an attempt to gain a greater specification of effective leadership attributes for a given organizational developmental phase, the innovative task-situation. The major assumption of the paper was that when an organization is experiencing the early stages of innovation, that certain types of leaders, with certain types of styles and attitudes would be more effective than leaders without those attributes. Another assumption of the study was that when an organization had made significant, comprehensive and systematic moves to facilitate change and leadership functioning, and leadership is judged to be for the most part a failure, that the explanation of failure and success of leadership is to be found in the personal attributes of the leaders. Based on that assumption, the research was directed toward the problem of deriving the behavioral criteria needed for matching personal attributes of potential leaders with the requirements of an innovative situation. The basic technique used was the application of regression analysis techniques and procedures for the derivation of behavioral criteria from a given situation, a technique referred to in the methodology literature as situational testing. The ultimate aim of the study is the use

of the behavioral criteria for subsequent research, which should strengthen the definitiveness of the criteria or demonstrate their predictive weakness, and in prediction equations useful for school decision makers when attempting to isolate and select individuals for innovative leadership.

The more specific problem the study concentrated on, however, was concerned with whether or not, in the system used as the source of data, the leadership cadre would exhibit personality or attitude or behavioral differences when measured in the dichotomous categories effective and ineffective. If no differences were to be found, it meant that the research into such difference was unjustified in this case. If differences were to be found, on the other hand, more insight was to be gained into the personal attribute factor impinging on effective leadership. Our hypotheses, therefore, posited that there would be differences in the personal attributes of the effective and ineffective leaders in our subjects' school system. These hypotheses were, in their null form, rejected which suggests the following major conclusion: if one is interested in identifying effective leadership for a situational context similar to one described in this study, he should at least have a concern with the personal attributes of the people to be selected. Our data, being limited at the moment, cannot suggest anything further without additional research and measurement of the efficacy of our prediction model. For this study,

at any rate, we see that significant differences at a high level between our effective and ineffective subjects.

These significant differences in the personal attributes of the effective and ineffective leaders allowed for the effectives building warmer relationships and being more sensitive to the feelings of uncertainty of their followers. The effectives also offered themselves as models of how innovators act and thus projected a normative level which tended to skew the decisions of the followers of the effective leaders in their direction, as the risky shift research suggests it would do. The ineffective, on the other hand, apparently, since the data did not demonstrate otherwise, represented the status quo and projected a normative model of rigidity which did not allow for the response to situational factors an innovative situation demands.

From these very preliminary and incomplete data, at any rate, it would appear that there are different personal attributes needed for effective leadership in different situations. In this study, we not only confirmed that idea, but also were able to isolate two highly significant personal attributes of leaders who were judged to be effective in a very innovative situation, attributes which may fruitfully be used as predictive criteria in further study. The major tasks that lie ahead are continued research for the development of empirically matched situational and leadership criteria based upon construct definitions of various situational

families.

Finally, this study tends to support the idea that the situational testing approach to the derivation of specific behavioral criteria for the selection of leaders with the personal attributes needed for effective operation within given situational families is a viable approach. While other school districts may not match exactly the characteristics of the district used for this study, we posit that when a district is in its initial stages of innovation and has made some overt commitments to change, that the behavioral criteria derived through this study may prove to be helpful to decision makers in the district as they try to select objectively leaders to match the situational demands.

Implications and Conclusions

It would be inappropriate to end this study without commenting further about the implications of this research as it relates to the school district studied. The first and major conclusion to be drawn is that if the district had drawn as sharp a set of selection criteria for the leadership cadre as they had for the other facets of their plan, the results of their change attempts may have been significantly different. Unfortunately, the district's decision makers made the assumption that mere certification for teaching and administrating was sufficient evidence of commitment to the goals of excellence in education and quality pro-

grams. In many ways the district did accomplish many of its goals. When comparing even the failure level of the district with more traditional or less committed districts, the sample district stands far ahead. Even now, it has, for example, continued the processes of shared decision making. Its physical plant is recognized as being one of the more superior in the state. Its media resources and facilities have been nationally recognized. The programs begun under the guidance and help of the effective teacher-leaders continue to maintain themselves and still attract attention from other school systems.

If the district decision makers had the kind of predictive criteria isolated in this study, they would have been able to utilize one additional tool in their selection process. As it was, they allowed natural and self-selection forces to work. This meant that some of the leader cadre may have been attracted to leadership positions merely for the status or financial reward. It is difficult to tell that from the data presented here, but one tentative conclusion arising out of the data is that the ineffectives were not motivated by internal or external reward systems to function as they were expected to function. They did not tap the resources available to them as the effectives did, and they made few, if any, attempts to gain greater insight into their performances from those in the district specifically designated as leadership support people.

In the judgment of the author, the system would have moved even further towards its renewal goals if it had first concentrated on personal change processes. Essentially, that would have meant a strong concentration on human relations training with focus not only on task level skills but also on self-perception and socio-emotional processes. In that way, more knowledge would have been gained by the teacher-leaders about themselves and the roles they were to play, and the decision makers would have gained some degree of understanding about the people in teacher-leader candidacy positions. This judgment is based on the author's understanding of the sociological research that deals with the process of resocialization and the literature relating to organizational change (Schmuck and Runkel, 1972). These sources suggest that when people in an organization have developed behavioral and normative patterns over a period of time, those behaviors and norms may act as powerful blocks to change. One way to attend to these and stay within the context of the human and participatory goals of the district, is a human relations training program which may have introduced the leadership cadre to alternative modes of behavior and alternative norms. Such training might have helped the potential leader to either develop behaviors and norms more congruent with the organization's or make the decision to withdraw from leadership.

There is no doubt, at any rate, that much about educa-

tional organizational change was learned from the district discussed in this study. The structural changes they made in staff utilization, decision making, curriculum development, the use of technology and the rest, and the way these changes were systematically integrated to form a cohesive approach to change is truly important for others interested in change to study. The drive by the district to maximize Theory Y relationships was also a powerful contribution to demonstrating the effectiveness of such a normative climate in bringing out the best in those educators with altruistic feelings for their position. We conclude this study, therefore, with this affirmation. This study was in no way a condemnation of the dedicated and sophisticated change attempts made by this district. On the contrary, if more districts in the United States made the same level of commitment to change, American education would certainly have less problems than it now has. This study merely points out one further criterion of planning that educational decision makers must be concerned with: the nature of the people they are asking to perform crucial leadership roles in relationship to the situational demands on those roles. If some way can be found to discriminate penchants of individuals one way or the other in terms of their potential for leadership role performance, such as the personal attributes discussed in this study, a greater match between leaders and task-situations is bound to result. That is a central task for educational researchers to attend to.

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APPENDIX A

SUMMARY OF THE DATA FROM THE VARIOUS INVENTORIES FOR THE
EFFECTIVE TEACHER-LEADERS

I. FIRO-B

<u>Variable Name</u>	<u>Correlation</u>
Expressed Inclusion	-.2417
Wanted Inclusion	.0111
Expressed Control	.3805*
Wanted Control	-.1368
Expressed Affection	.0548
Wanted Affection	.0906

*(p = .10, Trend)

NAMES AND SYMBOLS FOR FIRO-B SCALES

	Expressed Behavior	Wanted Behavior
Inclusion	I make efforts to include other people in my activities and to get them to include me in theirs. I try to belong, to join social groups, to be with people as much as possible.	I want other people to include me in their activities and to invite me to belong, even if I do not make an effort to be included.
Control	I try to exert control and influence over things. I take charge of and tell other people what to do	I want others to control and influence me. I want other people to tell me what to do.
Affection	I make efforts to become close to people. I express friendly and affectionate feelings and try to be personal and intimate.	I want others to express friendly and affectionate feelings toward me and to try to become close to me.

II. Biographical Data

<u>Variable Name</u>	<u>Correlation</u>
Sex	-.0944
Teaching Level	-.1282
Years Experience	-.4909*
Educational Level	-.2479
Cosmopolitanism	.2597
Father's Occupation	-.3019
Mother's Occupation	-.2421

*(p = .02)

III. Gordon Personal Inventory

<u>Variable Name</u>	<u>Correlation</u>
Cautiousness	-.4343*
Original Thinking	.4183*
Personal Relations	.0351
Vigor	.0937

*(p = .05)

MEANING OF THE FOUR SCALE SCORES

High and low scores on each of the Gordon Personal Inventory Scales are interpreted as follows:

Cautiousness (C)

Individuals who are highly cautious, who consider matters very carefully before making decisions, and do not like to take chances or run risks, score high on this Scale. Those who are impulsive, act on the spur of the moment, make hurried or snap decisions, enjoy taking chances, and seek excitement, score low on this Scale.

Original Thinking (O)

High scoring individuals like to work on difficult problems, are intellectually curious, enjoy thought-provoking questions and discussions, and like to think about new ideas. Low scoring individuals dislike working on difficult or complicated problems, do not care about acquiring knowledge, and are not interested in thought-provoking questions or discussions.

Personal Relations (P)

High scores are made by those individuals who have great faith and trust in people, and are tolerant, patient, and understanding. Low scores reflect a lack of trust or confidence in people, and a tendency to be critical of others and to become annoyed or irritated by what others do.

Vigor (V)

High scores on this Scale characterize individuals who are vigorous and energetic, who like to work and move rapidly, and who are able to accomplish more than the average person. Low scores are associated with low vitality or energy level, a preference for setting a slow pace, and a tendency to tire easily and be below average in terms of sheer output or productivity.

IV. California Psychological Inventory

<u>Variable Name</u>	<u>Correlation</u>
Dominance	.1412
Capacity for Status	.2926
Sociability	-.0250
Social Presence	.5148*
Self-Acceptance	.1532
Sense of Well Being	-.1030
Responsibility	-.0533
Tolerance	.1491
Good Impression	.4437*

<u>Variable Name</u>	<u>Correlation</u>
Communality	-.4521*
Achievement by Conformance	-.2308
Acheivement by Independence	.3500
Intellectual Efficiency	.3426
Psychological Mindedness	.6099**
Flexibility	.3173
Femininity	.1806

*(p = .05) ** (p = .01)

NOTE: See CPI manual for complete discriptions of variables

V. Ross' Philosophical Inventory

<u>Variable Name</u>	<u>Correlation</u>
Idealism	-.3847
Realism	-.1763
Pragmatism	.2806
Existentialism	.2329

INTERPRETATION

The scores may indicate: The subject has not formulated a philosophy; the subject does not wish to reveal his philosophy; the subject is philosophically in conflict with himself, inconsistent; or he has a philosophy. If he accepts a particular set of beliefs, he is one of the following. (Only brief and incomplete descriptions can be provided here). An Idealist is basically an authoritarian personality. (See studies of Adorno, Christie, Jahoda, et.al...) He views the world around him, human nature, and values as absolutes and immutable. He accepts the supernatural. He cannot compromise his ideals. He views others as needing to be told. He sees himself as a person to be imitated. A Realist is also authoritarian. He accepts the laws of nature. He is objective. He sees others as needing to be motivated by him. He is a mental disciplinarian. A Pragmatist is democratic.

He sees a dynamic world. He is flexible. He sees others subjectively as self-motivating, self-disciplining, and dynamically creative. He sees himself as an advisor, guider, a consultant to others. An Existentialist sees life as a series of confrontations with choice, freedom, love, death, etc. He sees the universe to be without meaning until man brings meaning to it. He sees others as creatures of feeling. He believes man is born free; he makes himself. He is a catalyst who provides opportunities to bring out the individual uniqueness of man in an environment of freedom.

APPENDIX B

TEACHER-LEADER RATING SURVEY

Instructions: Complete one form for each teacher-leader (TL). Think of each line as a continuum and mark an "A" on the spot you think the TL ranks.

	Rarely	Sometimes	Often	Very Frequently	Item No.
How often is the TL's behavior seen as friendly and supportive by teachers?	/	/	/	/	1
How much confidence and trust does your TL have in his teachers?	A great deal	Substantial amount	Some	Not very much	2
How much confidence and trust do teachers have in the TL	Not very much	Some	Substantial amount	A great deal	3
How free do teachers feel to talk to the TL about academic matters, such as instructional plans, teaching methods, curriculum development, etc.?	Very free	Rather free	Somewhat free	Not very free	4
How often are teachers ideas sought and used by the TL about academic matters?	Rarely	Sometimes	Often	Very frequently	5

What is the character and amount of interaction in the district?

a. between TL and teachers?

b. among team members

How much cooperative teamwork is present in your school among TL and teachers

At what level are decisions made about school matters, such as course content, instructional plans, teaching methods, student behavior, student activities, etc.?

Extensive, friendly interaction, with high degree of confidence and trust	Moderate interaction; often with fair amount of confidence and trust	Little interaction; TL and teacher usually maintain distance from one another	Little interaction; usually with fear and distrust
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Item No.

13

14

15

16

/ / / /

/ / / /

Very little / / / /

Through-out school TL, teachers, and students participating in decisions affecting them

Relatively little / / / / Very substantial amount through-out school

Broad policy at top; more specific decisions at lower levels

Policy at top; specific decisions by teachers, but usually checked by TL before action

Bulk at top; by TL

/ / / /

Is decision-making in your school based on man-to-man or a group pattern of operation?

Man-to-man only / Man-to-man almost entirely / Both man-to-man and group / Largely group /

Item No 17

In general, what does the decision-making process contribute to the desire of teachers and students to do a good job?

Not very much, often weakens it / Relatively little / Some contribution / Substantial contribution / Often unaware /

Item No 18

To what extent are decision makers aware of the problems of teachers?

Generally well-aware / Moderately aware / Aware of some, or only unaware of others / Fully involved /

Item No 19

To what extent are teachers involved in decisions related to their work?

Not at all / Occasionally consulted / Usually consulted / Fully involved in all decisions /

Item No 20

Who holds high performance goals for your school?

TL, teachers, students, parents / TL, most teachers, some students / TL and teachers, some teachers / TL only /

Item No 21

Who feels responsible for achieving high performance goals?

TL and some teachers / TL, most teachers / TL, teachers / TL, teachers /

Item No 22

How much secret resistance is there to achieving high performance goals?

Little or no resistance and much cooperation	Some resistance and some cooperation	Moderate resistance	Strong resistance	Item No. 23
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In what manner are goals established?

Issued by TL	Goals issued; teachers may comment	Goals issued after discussion with teachers	Goals usually established by group participation	24
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What is the level of performance goals which TLs seek to have the school achieve?

Extremely high goals	Very high goals	High goals	Average goals	25
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What is the general attitude of teachers toward the district as a place to work?

Strongly favorable	Usually favorable	Some times hostile, some times favorable	Hostile	26
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How are teachers motivated in the TL's team	Fear, threats-punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment and some involvement	Rewards based on group participation and involvement in setting goals, improving methods, appraising progress toward goals, etc.	Item No.
How are teachers motivated in the TL's team	Fear, threats-punishment, and occasional rewards	Rewards and some actual or potential punishment	Rewards, occasional punishment and some involvement	Rewards based on group participation and involvement in setting goals, improving methods, appraising progress toward goals, etc.	27
Do motivational forces conflict with or reinforce one another?	Marked conflict of forces reducing behavior in support of the school's goals	Conflict often exists; occasionally forces will reinforce at least, partially	Some conflict but often motivational forces will reinforce each other	Motivational forces generally reinforce each other in substantial and cumulative manner	28
How often are attitudes toward other teachers favorable and cooperative, with mutual confidence and trust?	High degree of confidence and trust	Some trust and cooperativeness	Some distrust	Frequent hostility	29

How much satisfaction is derived from supervision teachers receive?	High satisfaction	Moderate satisfaction	Some dissatisfaction	Usually dissatisfaction	Item No.	
	/	/	/	/	30	
What degree of teacher behavior change has occurred?	0	50	100		31	
What degree of curriculum has changed?	0	50	100		32	
Has the TL asked for help from the support systems?	Rarely	Some-times	Often	Frequently	Very frequently	33

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