THE TRAIT AND SITUATIONAL APPROACHES IN THE DEVELOPMENT OF A LEADERSHIP INVENTORY

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Andrew J. DuBrin

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THE TRAIT AND SITUATIONAL APPROACHES IN THE DEVELOPMENT OF A LEADERSHIP INVENTORY

By

Andrew J. DuBrin

A THESIS

Submitted to the College of Science and Arts of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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My wife Joyce and I met three days before I tested the first participant in this investigation. Her role in this thesis has not been that of a typist, proof reader, or statistical helper, but that of a beautiful and compassionate woman who has made life very pleasant for me.

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My appreciation to the industrial and state government personnel who participated in this study cannot be overstated. Approximately 450 persons, aside from my committee members and judges, were directly or indirectly involved in this study. These people included the secretarial staff of the Department of Psychology at Michigan State University; executives at Michigan Bell, the Redmond Company, and the Michigan Civil Service; the 394 participants; and many others including an elevator operator who expressed his opinion on the readability of the experimental questionnaires.

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ABSTRACT

The purpose of this study was to develop an inventory based upon the trait and situational approaches to leadership and to compare their relative contribution to validity. The relative efficacy of linear and configural methods were compared in developing both the inventory and criterion of leadership. Two instruments were developed; a Self-Situational Inventory (SSI) and a Biographical Information Inventory (BII).

The SSI consists of 70 items; 36 "situational," and 34 "trait." The BII surveys a respondent's leadership roles and experiences. The predictor, the criterion, and an intelligence test were administered to 394 supervisors: group MBT--126 male telephone personnel; group CSR--178 civil service personnel along with 19 electric motor company personnel; group F--68 civil service and three telephone company female personnel. The criterion was scored in three ways: (a) configurally--overall qualitative evaluations by nine judges; (b) item analytically--objective evaluations by the investigator; and (c) an average of (a) and (b). Nine sets of scoring keys, developed on the basis of predictor-criterion relationships found in the experimental sample, were utilized in cross-validation.

Thirteen out of 27 cross-validity coefficients were significant at or beyond the .05 level. These coefficients ranged from -.016 to .428 with a median of .199. The configurally scored criterion yielded one significantly better result than did the item-analytically scored criterion. The scoring key with the highest cross-validity coefficient

was applied to group F (the validity generalization sample), yielding a validity of .452 which did not significantly attenuate when intelligence was partialled out. Scoring keys which cross-validated were composed of a non-significantly different number of trait and situational items. The scoring key applied to the validity generalization sample was divided into an equal number of trait and situational items. Neither the trait nor situational items considered separately showed a significant relationship to the criterion.

A configural analysis procedure applied to isolate many subclusters yielded nine Experienced Leader and seven Inexperienced Leader scales for group MBT, and thirteen Experienced and nine Inexperienced Leader scales for group CSR. When the cell frequencies for groups MBT and CSR were combined in the cross-validational sample (thus retaining within group comparisons utilized in configural analysis) the chi square obtained was 4.530 ($p < .05$). On the other hand, the configural analysis procedure applied to isolate few subclusters failed to manifest significant cross-validity.

Linear analysis expressed in terms of chi square for the cross-validational sample showed significant results only when across group MBT-CSR criterion Z scores were utilized ($\chi^2 = 10.53$). Configural analysis expressed in terms of product-moment correlations did not manifest significant cross validity. Although linear analysis more frequently yielded significant cross-validity than did configural analysis, its relative superiority over configural analysis could not be demonstrated; both methods yielded significant cross-validity when their results were expressed in terms of the most appropriate statistical procedure.

On the basis of these results it is concluded that: (a) Self and situational reports of experienced leaders are both configurally and dimensionally different from those of inexperienced leaders. (b) Both the trait and situational theories of leadership are useful in the construction of items for leadership assessment.

An hypothesis was formulated that experienced leaders in contrast to less experienced leaders report more confidence about the adequacy of their relationships with their groups and report less confidence about some of their personal characteristics.

Approved Louis S. McQuilty
Major Professor

19 May 1960
Date

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CHAPTER I

INTRODUCTION

The concept of leadership has both practical and theoretical importance and consequently has long been a popular topic of investigation in psychology and other disciplines. The psychological literature alone contains an estimated 2,925 titles dealing with leadership.[1] Both in research procedures and concepts about leadership there is a basic difference in point of view. On the one hand is the idea that leadership is a characteristic of an individual, an ability largely independent of the situation in which leadership is required. This approach has been called the "great man" or trait theory of leadership. The vast bulk of published research on leadership before 1949 is concerned with the personal characteristics of leaders (Fox, et. al., 1954).

The other point of view conceives of leadership as primarily a group situation in which the characteristics of the group and of the leadership situation are as important as the characteristics of the leader. The majority of the literature in the past ten years has concerned itself with this approach (Ross and Hendry, 1957).

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[1] This estimate was obtained in the following manner: Ruch (1953) writes that 2,532 items were found for a bibliography of leadership compiled under his direction. These items included leadership references prior to September 1, 1952. Titles listed under "leader" or "leadership" in Psychological Abstracts from this date up until October 1959, were then counted. These 393 titles were added to the figure given by Ruch. Taken together this gave a total of 2,925 titles.

Trait Approach

One of the more widely quoted earlier surveys of leadership trait studies, made by Bird in 1940, found seventy-nine traits mentioned in twenty different studies, only five per cent of which were common to four or more investigations. The most comprehensive study was made by Stogdill in 1948. The traits more commonly found to be empirically related to leadership in the 124 studies reported by Stogdill include the following: 1. physical and constitutional factors: height; weight; physique; energy; health; appearance; 2. intelligence; 3. self-confidence and self-assurance; 4. sociability; 5. will (initiative, persistence, ambition); 6. dominance; and 7. surgency (i.e., talkativeness, cheerfullness, geniality, enthusiasm, expressiveness, alertness, and originality).

Despite these findings, however, studies of the personalities of leaders and nonleaders have failed to find any consistent patterns of traits which characterize leaders. Failure to find consistent patterns have been attributed to one or more of three factors by Gibb (1954): 1. Personality measurement is still inadequate. 2. The heterogeneity of the groups studied may have contributed to inconsistent results. 3. Leadership is considered to be a complex pattern of functional roles.

Another explanation for the failure to find consistent results is that the statistical methods are not adequate to isolate all of the many possible patterns of characteristics which may be associated with leadership. McQuitty (1956) writes that: ". . . After an

investigator finished a study, he did not know whether his failure to obtain more complete differentiation was due to the particular items he had chosen for his test or to the statistical method he had selected for weighting the items in obtaining total scores . . ." (McQuitty, 1956; p. 9).

Similarly, although single traits have not consistently been found empirically related to leadership criteria, it is theoretically possible that patterns of traits or characteristics might be significantly related to leadership criteria. McQuitty (1956, 1958, 1959) has emphasized that characteristics investigated configurally may show higher relationships to criteria than when investigated atomistically. In one part of this investigation leadership self-reports will be investigated both atomistically and configurally in relation to leadership criteria.

Group Approach

The group or situational approach to leadership is reflected in the leadership studies conducted for the past twelve years at Ohio State University (Stogdill, 1955). Leadership according to this approach is defined as a process of influencing the activities of an organized group in its task of goal setting and goal achievement. This definition implies that leadership is an aspect of an organization rather than an individual. Leadership is not determined by an individual but by a pattern of interrelationships among the group members and the leader. Since leadership is determined by a system

of interesting variables, dimensions of responsibility and personal interaction are conceived of as representing a gradient of influence. Leadership behavior is then measured in terms of the number of influence acts an individual exerts or the number of leadership actions in which he engages (Stogdill, 1950).

The situational approach to the study of leadership, according to Gibb (1954) involves four elements:

> . . . The situation includes: (i) the structure of interpersonal relations within a group, (ii) group or syntality characteristics such as those defined by . . . group dimensions . . . , (iii) characteristics of the total culture in which the group exists, and (iv) the physical conditions and the task with which the group is confronted (Gibb, 1954; p. 901).

Both the trait and situational approaches to leadership have revealed positive findings but they have generally been treated as alternative approaches. Neither approach has yet provided an adequate and comprehensive theory which renders unnecessary efforts to develop new approaches to understanding or investigating leadership. The present study attempts to integrate the trait and situational approaches in terms of self and situational reports by individuals who differ in amounts of leadership experience. Literature relating to leadership and the "self" is reviewed indicating that leaders tend to think about themselves differently than nonleaders. The same literature also indicates that leaders give different self-reports from those of nonleaders.

Both emergent and appointed leaders are discussed. Our investigation deals with appointed leaders. Therefore, those references

cited which give primary emphasis to appointed leadership are considered to have more relevance to this investigation than those references which emphasize emergent leadership. However, investigations of emergent leadership also appear to make a contribution towards the understanding of the differences in self-perceptions and self-reports between leaders and nonleaders. For this reason discussions of emergent leadership are given some recognition here.

LEADERSHIP AND THE SELF

Self-Confidence

The trait approach to leadership gives some support to the hypothesis that leaders give different self-reports from non-leaders. The majority of studies which correlate personality variables with leadership show a positive relationship between self-confidence or self-assurance and leadership; leaders are more self-confident than nonleaders (Gibb, 1954; Jenkins, 1947).

Early research evidence along these lines was presented by Bach (1918) some forty years ago. He mentions that an important component of leadership is self-confidence. Eight years later Cox (reported in Stogdill, 1948) wrote that great leaders are characterized by such traits as self-confidence, self-assurance, and self-knowledge. Cowley (1928) studying criminal, army, and university leaders, found that traits of self-confidence are common to all three. Drake (1944) found a correlation of .59 between leadership and self-confidence among college girls. Bellingrath (reported in Gibb, 1954) similarly found a correlation of .53 between teacher ratings of self-confidence

and of leadership for 224 boys. Richardson and Hanawalt (1943) found that college and adult leaders make higher scores on the Bernreuter self-confidence scales than do nonleaders. Gibb (1947) showed that successful Australian OCS candidates are characterized by superior background, higher than average self-confidence, sociability and aggressiveness.

In a more recent study Oettel (1953) describes the development of a scale of personality test items for use in discriminating between leaders and nonleaders regardless of the situation. Leaders were found to possess greater social effectiveness, more adequate interactional technique, and greater self-confidence. Gowan (1955) has also shown a positive relationship between leadership and self-confidence.

The general implication of these findings is that leaders consistently rate higher than followers in self-confidence or self-assurance. ". . . A person who believes in himself gives the impression that he has the skill, power, or ability which will enable him to solve the problem in hand. . ." (Gibb, 1954; p. 886).

Achievement Desires

Henry (1949) basing his analysis on results from the Thematic Apperception Test and interview procedures, concluded that successful executives show high drive and achievement desire. The executive leaders conceive of themselves as hard-working and achieving persons who must accomplish in order to be happy. It is stressed that the areas in which they do their work are clearly different, but each

feels this drive for accomplishment. ". . . This should be distinguished from a type of pseudo-achievement drive in which the glory of the end product alone is stressed. The person with this latter type of drive, seldom found in the successful executive, looks to the future in terms of the glory it will provide him and the projects that he will have completed--as opposed to the achievement drive of the successful executive, which looks more toward sheer accomplishment of the work itself. . ." (Henry, 1949; p. 289).

Self-Attitudes and Self-Esteem

Northrup (1955) had sixteen industrial foremen and supervisors describe elements they considered necessary for successful leadership. Nine out of fifty-one responses emphasized the importance of self-attitudes for the successful leader. It was concluded that leadership depends, to some extent, upon how a man feels about himself, because this determines how he will react toward others. The same writer noted that although attitudes about the self are emphasized, the implications is that these self-attitudes have consequences in group interaction.

Goldberg (1955) investigated the self-attitudes of leaders and nonleaders among high school juniors. Among her findings, she reported that favorable self-appraisal of leadership ability is more frequent among leaders than among the general population.

Bass (1953) used a self-rating technique to study situational and personality factors in leadership among sorority women, finding that leaders, socially bold women, women more motivated to attain leadership

status, and more verbal women are higher in self-esteem.

Kats (1956) found that stability of self-concept is positively related to sociometric status, using a high school group. This finding can alternately be interpreted to mean that self-esteem, a frequent correlate of stability of self-concept (Brownfain, 1952; Raymaker, 1957), is also related to sociometric status. The relevance of this study to leadership can be understood when it is recognized that leadership is frequently defined as high socioeconomic status (Stogdill, 1948).

These findings on self-esteem and self-attitudes of leaders and nonleaders tend to show that leaders somehow look upon themselves differently from nonleaders. These findings may also be taken as evidence that leaders give different self-reports from nonleaders when it is recognized that the methodological approach used in these studies was a self-report technique.

Self-Perception

Ghiselli (1953) reports the development of a forced-choice self description adjective check list. On the basis of adjectives chosen by a given respondent, a description of his self-perceptions is constructed. Using this technique, Ghiselli and his co-workers have compared the self-perceptions of members of different groups such as line workers and supervisors. In a study by Porter (1958) the Self-Description Inventory developed by Ghiselli was completed by 463 management personnel and 320 line workers. Management personnel were defined as those who have any supervisory duties. All those who had

no supervisory duties, those in the lowest level of their organization, were classified as line workers. Twenty-five of the sixty-four dyads differentiated between the two groups at the .05 level of confidence. When the over-all self-perceptions of the two groups were contrasted with each other, management personnel pictured themselves in a way that closely fits a "leader" stereotype. Line personnel, on the other hand, gave the complementary picture of a "follower" stereotype. Consistently throughout the twenty-five pairs, management personnel selected traits closer to the leadership end of the continuum, and line personnel selected traits toward the followership end. A later study by Porter (1959) utilized essentially the same experimental design and concluded that the self-perceptions of first-level supervisors are different from both those of upper management personnel and line workers.

Gebel (1954) sought to discover, through a phenomenological approach to personality, whether the person who emerges as the leader of an initially leaderless discussion perceives himself differently from a nonleader. To test the author's hypothesis, the conceptual matrices of the persons attaining the highest status during the course of the leaderless group discussion were compared with those of persons attaining the lowest status. The conceptual matrix refers to the individual's organization of the world and his expressed perception of (a) himself, (b) that which is not part of himself, and (c) the interrelations of (a) and (b). The results showed that leaders expressed a significantly greater number of response units which suggested ". . . greater tolerance for exposing the phenomenal field."

This was interpreted to mean that nonleaders experienced more threat and as a consequence a restriction of their phenomenal field took place. Leaders tended to have more positive attitudes toward themselves, tended to perceive the world with a lower positive affect, and tended to perceive other's effect on them to be more positive than nonleaders.

Self-Description

Campbell (1956) reports the development of a Leader Behavior Description Inventory which has been designed to measure ten hypothetical dimensions of leader behavior; Communication Up, Recognition, Organization, Initiation, Membership, Communication Down, Integration, Production, Representation, and Domination. The form was used by 69 submarine officers to describe their own behavior. Using the identical scales, the behavior of the same officers was also described by their subordinates. Subordinates included all the enlisted men under their supervision. However, the actual number of subordinates is not reported. Although the ten variables tended to be interrelated, the general level of correlation was not high.

The correlation between all ten leader-behavior self description variables and fifteen criterion variables of leadership such as Level in Organization, Military Rank, Morale in units, and various nominations were then computed. Only 14 per cent of the correlation coefficients were significant at the five per cent level or better. The general finding using the leader behavior description technique was that in contrast with subordinate description, officers describe themselves

as superior in terms of keeping informed, communicating down, recognizing the work of subordinates, initiating more ideas, integrating, representing their own group, emphasizing organizational procedures, and pushing for production.

Self-descriptions were also used in a "Delegation Scale." Using this scale, officers described the extent to which they delegate responsibility and authority to subordinates. These self-description items showed relatively high positive correlations with external leadership criteria. For example, the correlation found between score on the Delegation Scale and level in the organization was .42.

Campbell emphasizes the value of using self-description items in assessing correlates of leaders and leadership behavior. The author concludes that self-descriptions are superior to descriptions by subordinates in the following respects: (a) Subordinate descriptions seem to be relatively undifferentiated by topic, and more subject to halo as shown by a high level of intercorrelation among them; (b) Subordinate descriptions are contaminated because raters are also often judges; (c) Self-descriptions are relatively uncontaminated by methodological overlap with criterion measures; (d) Self-descriptions stand a much better chance of revealing stable and persistent attributes of individuals than do reputational measures; (e) Descriptions by others can only be made when the person to be described is available for observation by describers; (f) Bias present in self-description is less systematic than that to be found in description by others. ". . . For these reasons the correlations

found between self-descriptions and leadership criteria have a particular value, . . ." (Campbell, 1956; p. 70).

The part of our discussion entitled "Leadership and the Self," has brought together both direct and indirect support for the assumption that leaders perceive themselves differently than nonleaders and give different self-reports from nonleaders. The evidence along these lines can be summarized as follows:

1. Traits of self-confidence, self-assurance, and self-esteem have frequently been found characteristic of leaders.

2. Executive leaders conceive of themselves differently in terms of achievement drive than do nonleaders.

3. Leaders look upon themselves more favorably and with more self-acceptance than nonleaders.

4. Industrial leaders have been shown to perceive themselves more in terms of a leader stereotype than do nonleaders.

5. Emergent leaders in a leaderless group discussion have shown different self-concepts than nonleaders.

6. Leader self-descriptions show positive correlations with leadership criteria.

A Trait and Situational Approach

Our plan is to prepare an inventory of self and situational items which is to be completed by subjects who vary in amount of leadership experience. The inventory attempts to capitalize on the contribution of both the trait and situational theories of leadership; the inventory will contain items which derive from both approaches. The literature

reviewed here has suggested that leaders give different self-reports from nonleaders, and thus serves as a rationale for the construction of a leadership self report inventory. The self-report inventory constructed here will require respondents to give self-reports on both trait and situational statements.

PURPOSE

The literature reviewed here suggests that there are differences in both the traits of leaders versus nonleaders and in the social situations in which they perform. However, the terms "leader" and "nonleader" can be conceptualized as points on a continuum. At one end of the continuum are those individuals who actively carry out leadership functions and possess many leadership characteristics; at the other end of the continuum are those individuals who carry out virtually no leadership functions and possess relatively few leadership characteristics. The experimental design utilized here describes leadership differences in terms of amount of leadership experience, rather than utilizing the designations "leader" and "nonleader."

The major hypothesis of this investigation is that experienced leaders will give both self and situational reports which differ from those of inexperienced leaders. This hypothesis is investigated by testing two more specific hypotheses, each of which is investigated in such a manner than when both are taken together they serve to answer the major hypothesis. The secondary hypotheses are:

(a) Self and situational reports of experienced leaders are configurally different from those of inexperienced leaders.

(b) Self and situational reports of experienced leaders are dimensionally different from those of inexperienced leaders.

In testing these hypotheses, two purposes emerge:

(a) To develop a self-situational inventory based upon definitions of leadership and leadership behavior from both the trait and situational points of view.

(b) To develop a criterion of leadership based upon biographical information of leadership experiences.

The next part of this investigation is devoted to a review of the literature relevant to investigating the two secondary hypotheses and implementing the two purposes.

DIMENSIONAL AND CONFIGURAL ANALYSIS

The first secondary hypothesis is that the self and situational reports of experienced leaders are configurally different from those of inexperienced leaders. According to pattern-analytic theory as described by McQuitty (1956) it is possible that items will show maximum validity when treated in various combinations in relation to the criterion. A frequently cited theoretical illustration of the predictive possibility of patterns of responses has been presented by Meehl (1950). Essentially the "Meehl paradox" demonstrates that it is possible to obtain perfect prediction of a dichotomous criterion using two dichotomous items, both of which when considered individually have a zero relationship to the criterion.

It is theoretically possible that the self and situational reports of leaders will show a patterning of responses to self and situational items. Pattern analysis is suited to discovering significant response patterns. McQuitty (1956) has discussed the limitations of linear models for isolating predictive patterns of responses. The same author has suggested that pattern-analytic procedures are designed to yield configural significance, while item-analytic methods are inadequate in this respect.

The alternative secondary hypothesis in this investigation is that self and situational reports of experienced leaders are dimensionally different from those of inexperienced leaders. This hypothesis assumes that inventory items will show maximum validity when treated individually, in accord with traditional psychometric theory. The logic and procedures of conventional item-analytic techniques are comprehensively treated by Thorndike (1949), Guilford (1956), and Gulliksen (1950), and need not be described here.

DEFINITIONS OF LEADERSHIP

The first purpose of this investigation is to develop a self-situational inventory based upon definitions of leadership and leadership behavior. After reviewing approximately two hundred psychological and sociological articles and books dealing with leadership, as indicated by their titles, the author found 110 definitions of leadership. The development of a self-situational inventory based upon these definitions of leaders or leadership behavior is described in Chapter II. Following are a sample of the

definitions drawn from the literature which were judged by the present investigator to represent somewhat different approaches to defining leadership.

1. Authority
   a. Leadership is the exercise of authority and the making of decisions (Dubin in 73).
   b. The leader is an individual in a given office or position of apparently high influence potential (Stogdill, 1950).
2. Interaction
   a. Leadership is the initiation of acts which result in a consistent pattern of group interaction directed toward the solution of a mutual problem (Hemphill, 1949).
   b. Leadership is a mutual interaction between the drive of group members and the characteristics and behavior of the person who assumes a central role (Redl, 1942).
   c. The leader is one who initiates and facilitates member interaction (Bales and Strodbeck in 63).
3. Awareness of group goals or needs
   a. Leadership is the process of influencing group activities toward goal setting a goal achievement (Stogdill, 1955).
   b. A functional relationship called leadership exists when a leader is perceived by a group as a controlling means for the satisfaction of their needs (Gibb, 1947).

4. Personal characteristics

   a. Personal leadership is the domination and control of people in face-to-face situations through the greater aggressiveness, ability, or physical superiority of the leader (Jenkins, 1947).

   b. The leader is a person who possesses certain distinctive skills or abilities over the rest of the group members (Rogers, 1950).

LEADERSHIP CRITERIA

The second purpose of this investigation concerns the development of a leadership criterion. Studies are reviewed which deal directly with the problem of evaluating leader effectiveness.

Leaderless Group Discussion

The leaderless group discussion approach (LGD) has frequently been used to isolate those accepted as leaders both in industry and for experimental purposes (Bass, 1954). The basic scheme of the LGD is to ask several subjects as a group to carry on a discussion. No leader is appointed. Experimenters do not enter the discussion once it begins, but remain free to observe and note the performance of the subjects. Bass surveyed 12 studies using this technique, involving 1065 subjects. High rater agreement was found, especially where standardized behavior check lists were used. A median correlation of .82 was found between pairs of observer ratings for the 12 investigations.

Bass (1954) concluded that the LGD is a valid measure of leadership on the basis of positive correlations between leadership

designation in this technique and various other measures such as status; merit ratings; "leadership" characteristics; and other situational tests. A limitation of the LGD as a leadership criterion is that the opportunity for being designated a leader decreases with group size, making across group comparisons difficult if the groups are not equal in size (Bass, 1951).

Sociometry or Nominating Techniques

Sociometry has been shown to be an effective instrument for the study of small group leadership (Gibb, 1954). There is evidence that members of a group can reliably identify those persons who exert most influence upon them and that leaders identified in this way are also identified by external observers and other criteria. Gibb (1954) reports that when participants in groups of ten were asked a question implying the selection of co-workers on the basis of "influence," though the word influence was not used, the correlation of these choices with observer ratings of "leadership" was .80. When participants were asked directly whom they regarded as being leaders, the correlation with observer ratings was again .80.

Sociometric devices as criteria of leadership seem to be limited by at least three considerations. First they are unsuitable for leadership study in formal organizations (Gibb, 1954). Secondly there is much evidence that the sociometric question asked makes a considerable difference on the person selected as leader (Gibb, 1954). Thirdly, there is evidence that the extrapolation of leadership evaluation results from small groups to other situations should be regarded with skepticism (Smith, M. B., 1952).

Sociometry is frequently described as a "nominating technique." According to the nominating method of evaluating leadership, people select a person whom they think would make the best and/or poorest leader. Carter and Haythorn (1950) using the nominating technique with NROTC men, reported "adequate" reliability for the measures. Several other studies have demonstrated the usefullness of asking members of the group to nominate individuals for leadership positions. Williams and Leavitt (1947) report nominations to be their most successful measure in picking Marine combat leaders. Wherry and Fryer (1949) consider nominating techniques to be one of the "purest" measures of leadership. Van Dusen (1948) used a nominating technique to differentiate leaders from nonleaders among Boy Scouts and suggests that the same method of obtaining leadership criteria might have industrial applicability.

Ratings by friends and ratings by faculty members have been investigated by Carter and Nixon (1949). The reliability of both ratings by friends and faculty members to assess leadership ability was found inadequate, being subject to the traditional deficiencies of merit rating such as halo, leniency, and rater bias. These same criticisms are found to hold true for merit ratings in general (Smith, H. C., 1955).

Activity Ratings

One method of assessing a person's leadership status is to determine the extent to which he has been a leader in past activities. Carter and Nixon (1949) utilizing a biographical information blank,

assigned ratees 5 points for each presidency held, 3 points for holding other offices, and 1 point for membership in minor organizations. The reliability of this criterion was considered adequate, although its interrelationship with other criteria is almost negligible. Other studies, however, find previous leadership experience to be a valid predictor of future leadership behavior. Some of these studies are cited in the following section of this investigation.

Biographical Information

Rundquist (1950) made a comprehensive test of the assumption that facts in the applicant's personal background are related to leadership ability, using the Army Biographical Information Blank. The experimental form of the BIB had more than 1000 different items including biographical items covering both vocational and avocational activities. After item analysis with an external criterion of officer success, the pool was reduced to 204 items. A cross-validation with a sample of 1344 officers yielded a validity coefficient of .33. Browne (1950) also presents data which show the validity of using biographical information to differentiate leaders from nonleaders. His results showed that executive leadership is closely related to membership in social and professional organizations. The number of social and professional organizations to which an executive belongs increases with the level of position he holds.

The concept of using previous leadership as a predictor of future success is corroborated by studies which deal with persistency of leadership behavior. Page (1935) using 115 West Point Cadets as

subjects found that fourth year leadership ranks could be predicted from third year leadership ranks. Ranks were based on a combination of ratings on leadership by fellow students and superior officers. French (1956) cites a study in which airmen retained their leadership position over time and in different groups. Courtenay (1948) compared 200 high school leaders and nonleaders and found that leadership persisted in college and community life.

Occupying a Leadership Position

Frequently occupying a leadership position or the executing of leadership functions is considered a criterion of leadership (Campbell, 1956; Shartle, 1956; Stogdill, 1955; Hemphill, 1949). Carter (1950) and Hemphill (1952) have proposed a definition of leadership in terms of leadership acts. Hemphill suggests that: ". . . To lead is to engage in an act which initiates a structure in the interaction of others as part of the process of solving a mutual problem. . ." (1952, p. 15). Leaders are then identified by the relative frequency with which they engage in such acts. This type of leadership criterion is most suitable in a highly structured organisation where leadership functions are well defined (Gibb, 1954).

Selection of a Criterion

In selecting criteria for any research, four important criteria as indicated by Thorndike (1949) are: Reliability, relevance, freedom from bias, and practicality. Criteria which appeared to be deficient in any one of these four aspects were rejected for inclusion in this investigation.

The LGD was rejected primarily because of the assumed impracticality of asking company officials to engage in small discussion groups about topics external to their daily work schedules. Secondly, Bass (1951) has shown that leadership ratings given to men of different size discussion groups are not comparable. The use of sociometric results as leadership criteria was rejected because of its unsuitability for highly structured organizations. Sociometric devices have been shown best suited to small groups in which interpersonal communication is feasible (Gibb, 1954). Both sociometry and the LGD technique were excluded for use in this investigation for another reason. These techniques are applicable to emergent leadership studies. In this study we are dealing with appointed leaders. Conventional rating techniques were rejected for two reasons: (a) Merit ratings have frequently been shown to have serious deficiencies such as rater bias, halo, and leniency. (b) For various administrative reasons, the organizations participating in this investigation could not make merit ratings available.

The criterion developed for this study was a biographical information inventory of leadership experiences. Completed inventories are evaluated by a group of judges who are unfamiliar with the subjects completing the inventories. This would tend to eliminate biases due to personal acquaintances contributing variance to the rankings. Equally important, as indicated earlier, previous leadership activity has been shown to be a relevant criterion of future leadership activity (Browne, 1950; Rundquist, 1950). The Biographical Information Inventory

is described in Chapter II. The reliability of this criterion is assessable. Another advantage of the BII as a criterion measure is the short time required for administration--two to five minutes.

This chapter has reviewed literature relevant to our two hypotheses and two purposes. Literature has been discussed which tends to support the following propositions: (a) Leaders look at themselves differently than nonleaders. (b) Leaders give self-reports which differ from those of nonleaders. (c) A leadership criterion based upon biographical information of leadership experiences is a relevant criterion.

Before describing the methods used to test our two hypotheses, the reader should be cautioned of the limitations of self-report inventories. Guilford (1959) has summarized the major criticisms of self-report inventories. These criticisms are: (a) The examinee does not know himself well enough. (b) The examinee changes his response from time to time. (c) The interpretation of items varies from person to person. (d) Examinees falsify their answers. Despite these common criticisms of self-report inventories, Guilford does not take the position that all self-report inventories are without value, and that future research should be discouraged. According to Guilford, much of the criticism of these inventories can be attributed to a lack of understanding of techniques of test development.

CHAPTER II

METHOD AND PROCEDURE

Subjects

To obtain participants for this investigation a form letter was sent to 22 organizations throughout the state of Michigan, Ohio, and Indiana. Three organizations consented to participate--Michigan Bell Telephone Company, Michigan Civil Service, and the Redmond Company of Owosso, Michigan. A total of 394 subjects participated in this investigation, all of whom had the term "supervisor" included in his or her job title.

One hundred and twenty-nine supervisors were Michigan Bell Telephone Company personnel; 103 first line supervisors, 22 second line supervisors, and four third line supervisors. Three of the first line supervisors were females, all other Michigan Bell Supervisors were male. First level supervisors at Michigan Bell have direct supervision over 8 to 12 craft employees in such areas as work assignments, training, quantity and quality of production, and safety and salary progression. Second level supervisors have direct responsibility for the performance of four to six first level supervisors. Both first and second level supervisors are considered specialists in job knowledge. Third level supervisors have overall responsibility for service results in an area or district employing from 300 to 400 craft employees and associated supervisors.

Nineteen supervisors were personnel of a small electric motor manufacturing company, the Redmond Company. Twelve of these supervisors

are first line production supervisors directly in charge of the work conduct of at least four subordinates. The remaining seven Redmond employees held supervisory positions other than first line supervisor.

Two hundred and forty-six supervisors were Michigan State Civil Service Personnel; 178 males and 68 females. This portion of the sample was composed of personnel from three separate organizations under the jurisdiction of the Michigan Civil Service Commission: Department of Revenue, Ypsilanti State Hospital, and Department of Conservation.

The mean age of the supervisors in this sample was 44.64, with a standard deviation of 9.92; the mean education was 12.43 years of formal schooling, with a standard deviation of 2.46; the mean number of people supervised was 12.79, with a standard deviation of 17.71. The mean Adaptability Test Score (intelligence) of this group was 19.60, with a standard deviation of 5.76. This mean intelligence test score is nonsignificantly different from the mean intelligence test score of a sample of 660 supervisors cited in the manual for the Adaptability Test (mean = 19.4; standard deviation = 6.39). These 660 supervisors were composed of foremen of a steel mill, supervisory personnel of a bakery, and foremen of a piston ring manufacturing company.

For purposes of analysis, our sample was divided into three groups: 126 Michigan Bell Telephone males (MBT); 197 Civil Service and Redmond Company males (CSR); and 71 females (F). The following considerations led to this subdivision of the entire sample: (a) To control for the

possible effects of sex, all females were placed in a separate group; (b) MBT company employees constituted a less heterogeneous sample than the Civil Service group. Each Civil Service branch concerned itself with work of a relatively different nature than the other two branches (Department of Conservation, Department of Revenue, and a state mental hospital). The MBT company employees, however, did not show the same diversity of job function and job title. Therefore, by including only MBT male employees in one group it was possible to have one relatively homogeneous group within the sample. (c) Nineteen subjects were personnel of the Redmond Company. This group was considered too small for purposes of separate analysis and was therefore combined with the already relatively heterogeneous (with respect to job title and job function) Civil Service male group to form group CSR.

A complete listing of the specific job titles found in each of the three groups is given in Table 1. The 394 participants in this study represent a total of 106 different job titles.

Subjects were told that this study was being conducted solely for research purposes and that their answers to the questionnaires would have absolutely no bearing upon their jobs. All questionnaires were completed anonymously. Specific instructions given to respondents are found in Appendix E and Appendix F.

Criterion

The Biographical Information Inventory (BII), a criterion measure developed for this study, attempts to survey each respondent's entire

Table 1

Specific Job Titles of Participants
In this Investigation

Michigan Bell Telephone Company (MBT)

Job Title	Number of Subjects
Exchange Repair Foreman	13
PBX Repair Foreman	7
Splicing Foreman	6
Building Foreman	3
Station Repair Foreman	3
Supplies Foreman	3
Installation Foreman	20
Toll Test Foreman	17
Construction Foreman	17
Dial Switchman Foreman	13
Helper Foreman	1
Safety	1
Auditor	1
Test Center Supervisor	12
Instructor	3
Plant Employment Supervisor	1
Assignment Supervisor	4
	126

Civil Service & Redmond (CSR)

Department of Revenue	
Account Executive	8
Revenue Executive	9
Revenue Supervisor	1
Tabulating Supervisor	2
Office Executive	1
Account Examiner	1
	22
Redmond Company	
First Line Supervisor	12
Production Control Manager	1
Plant Superintendent	2
Inspector Foreman	1
Office Supervisor	1
Personnel Director	1
Traffic Supervisor	1
	19

Table 1 (Cont.)

Ypsilanti State Hospital	
Cook	9
Housekeeper Supervisor	2
General Foreman	1
Psychiatric Social Worker	2
Storekeeper	1
X-Ray Technician	1
Pharmacist	1
Attendant Nurse	10
Kitchen Manager	2
Painter	1
Ward Supervisor	4
EEG Technician	1
Cabinet Maker Foreman	1
Baker	1
Executive	1
Maintenance Supervisor	4
Dentist	1
Assistant Chief Engineer	2
Electrician	1
Laundry Manager	1
Plumber	1
Patient Care	2
	50

Department of Conservation (Personnel Working in State Parks)	
Conservation Officers	62
Law & Fire Supervisor	6
Patrol Boat Officer	1
	69

Department of Conservation (Office Employees)	
Account Executive	1
Fish Biologist	1
Law and Fire Supervisor	1
Office Manager	11
Personnel Officer	3
Office Supervisor	1
Accountant	1
Reproducing Machine Executive	1
Geologist	2
Game Biologist	2
Water Conservation Supervisor	1
Lands Executive	2
Procurement Officer	1

Table 1 (Cont.)

Department of Conservation (Office Employees) (cont.)	
Public Relations Executive	2
Park Administrator	2
Civil Engineer	1
Farm Game Restoration Supervisor	1
Conservation Executive	1
Forestry Executive	1
District Supervisor	1
	37

Females (F)

Michigan Bell Telephone Co.	
Office Supervisors	3
Department of Revenue	
Audit Clerk	8
License Supervisor	1
Account Executive	1
Department of Conservation	
Department Executive	4
Account Executive	2
Cashier	1
Accountant	1
Office Manager	1
Ypsilanti State Hospital	
Cook	1
Attendant Nurse	12
Seamstress	1
Dining Room Supervisor	1
Psychiatric Graduate Nurse	4
Social Worker	3
Physical Attendant	1
Office Supervisor	2
Psychiatric Administrator	1
Supervisor of Nurses	3
Psychiatric Nurse	3
Dietician	1
Registered Nurse	1
Special Education Instructor	1
Personnel Administrator	1
Ward Supervisor	2

Table 1 (Cont.)

Females (F) (cont.)

Ypsilanti State Hospital (cont.)		
Area Supervisor	1	
Kitchen Supervisor	3	
Occupational Therapist	1	
Director II	1	
Block Supervisor	1	
Dining Room Supervisor	3	
Housekeeper	1	
	71	Grand Total for Females

leadership experiences. To facilitate this purpose, leadership experiences were divided into three areas, educational, vocational, and avocational. The Army Biographical Information Blank discussed in Chapter I was not utilized here because it fails to tap educational leadership experiences. The Biographical Information Inventory was therefore divided into three parts, one part for each of the three areas of leadership experiences. Items on the BII ask the respondent to record "biographical" information rather than "leadership" experiences. This procedure was considered necessary to avoid requiring respondents to judge whether or not their experiences in organizations, clubs, teams, etc., were "leadership" experiences. As described later, judges ultimately determined the "leadership" quality of the respondents' organizational experiences. The BII is presented in Appendix G. Each participant in this investigation completed the BII. Additional biographical information, asking the participant's age and the number of people he or she supervised, was obtained from responses to questions asked on the first page of the set of experimental questionnaires. These questions are shown in Appendix E and F.

A configural criterion score for each participant was derived in the following manner: Nine advanced graduate students in psychology volunteered to serve as judges; eight of whom were males and one a female. Six judges were majors in industrial psychology. The other three judges consisted of one experimental psychology major, one clinical psychology major, and one social-personality major (the female). Each judge completed his judgments independently of the other eight judges. Judges were given the following instructions:

> In front of you are approximately 400 biographical information questionnaires completed by supervisors. You are asked to work with a group of one hundred inventories at a time. I want you to give each completed inventory a score of one to five; a score of five indicating the greatest amount of leadership reflected in responses to the inventory questions. The scores you assign to the supervisors should be based upon overall, global, configural, or clinical-type assessments of the quality and breadth of the respondents' leadership experiences.
>
> To facilitate scoring, sort each group of one hundred inventories into a forced distribution; 10% of the inventories will receive a score of 1; 20% a score of 2; 40% a score of 3; 20% a score of 4; 10% a score of 5. After sorting each pile of one hundred, record these scores on the form provided, and go on to the next pile. Proceed until you have evaluated all four piles of completed inventories.
>
> A leader for our purposes is defined as a person who seems to have had genuine leadership experiences.

The forms provided for the judges are presented in Appendix C and D. The evaluation and scoring of all 394 completed BII's took each judge approximately three hours. In addition to the responses given to questions on the BII, judges were told the number of people each participant supervised.

The nine judges' ratings are considered configural rather than additive judgments because they are assumed to be based on overall, global, or configural assessments in accordance with the instructions to the raters. To determine the extent to which this assumption was fulfilled, all nine judges were sent a brief questionnaire six months after they had performed the evaluations. The questionnaire asked the judges to describe the actual process they used in making the evaluations. Eight judges returned the questionnaire.

A configural criterion score was obtained for each subject by an algebraic summing of the score given him by each of the nine judges. A participant could then receive a configural criterion score ranging from 9 to 45. To facilitate subsequent item analyses both within the groups MBT, CSR, And F, and across all three groups, these raw configural criterion scores were converted into Z scores. Two sets of Z scores were computed; (a) within groups MBT, CSR, and F, and (b) across all three groups. The reliability of these configural criterion scores, indicated by agreement among nine judges, was computed by the method of intraclass correlation (Guilford, 1956).

A second set of criterion scores was derived by scoring each completed BII according to the following key, developed for this study:

> As stated earlier, the BII is divided into three sections; educational, avocational, and vocational leadership experiences. Educational and avocational leadership experiences were assigned points in an identifal manner: One point was assigned for each response which appeared to this author to reflect occupying a leadership position, either past or present. Vocational leadership experiences were scored in the following manner: If a respondent presently supervised 13 or more people he was assigned 3 points; 6 - 12 people, 2 points; 1 - 5 people, 1 point; 0 people, 0 points.[2] The present vocational position held by each respondent was then evaluated on a one to three basis: Three indicating a high degree of leadership. Assignment of one, two, or three points to a given position was determined on the basis of qualitative judgments by this author.

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[2] The basis for this assignment of points was as follows: A frequency distribution of the number of people presently supervised was prepared for all those participants supervising one or more persons. One third of these subjects supervised one to five persons; one third supervised 6 - 12 persons, and one third supervised 13 or more persons. Those people who supervised zero people were assigned a score of zero.

According to this key the minimum score would be zero and the maximum score would be a function of the number of leadership experiences the respondent indicated. To obtain an estimate of the score-rescore reliability of the item analytic criterion, 50 completed BII's were selected at random from the group of 394 BII's, and rescored according to the same key two months later. The correlation between the original item analytic criterion scores and the scores assigned two months later was then computed.

A criterion score for each participant was determined by a simple addition of those answers which were assigned positive weights according to this key. These scores are considered item analytic criterion scores because they were arrived at by an addition of weights. In contrast, the configural criterion scores previously described were arrived at on the basis of global assessments. Again to facilitate item analyses both within groups and across groups, raw item analytic criterion scores were converted into Z scores. Two sets of Z scores were computed; (a) within groups MBT, CSR, and F, and (b) across the three groups.

A third set of criterion scores was established by averaging the Z scores for the configural and the item analytic criterion scores. These constitute the combined criterion scores.

Across group comparisons of raw item-analytic and configural criterion scores were made by analysis of variance. Tukey's Q procedure was used to determine the significance of differences between pairs of means.

Measure of Intelligence

The Adaptability Test, Form A, published by Science Research Associates, was used as a measure of intelligence. According to the authors[3], the Adaptability Test is designed to measure mental adaptability or mental alertness and was constructed specifically for industrial use. There are thirty-five questions, all of which are phrased in "practical" rather than "academic" terms.

Predictor

A Self-Situational Inventory (SSI) containing items derived from both main theories of leadership (a) "great man" or trait, and (b) situational, was developed for this study to serve as a predictor. Basically the items describe the extent to which a respondent reports himself as playing a particular role, performing a particular function, or possessing a particular trait or characteristic. The respondent answers each item by indicating the extent to which he perceives himself in the way described by the item: Never, Seldom, Occasionally, Often, or Always. The Self-Situational Inventory, including directions to respondents, is presented in Appendix H.

Items chosen for inclusion in the predictor were based upon definitions of leaders and leadership behavior found in the literature. After reviewing approximately two hundred psychological and sociological books and articles dealing with leadership, as indicated by their titles,

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[3] Joseph Tiffin and C. H. Lawshe, Jr. The Adaptability Test (Chicago, Science Research Associates)

130 definitions of leadership and leadership behavior were found. As each article was reviewed, the definition or definitions of a leader or leadership behavior used by the author(s) of the article were recorded. An attempt was made to omit definitions that were previously found in other articles. Nevertheless, out of this list of 130 definitions, 20 duplications were found. Duplicates were discarded and a final list of 110 definitions was obtained. One questionnaire item was written for each of the 110 definitions. These 110 items were then typed on three by five index cards and arranged in random order. Following are two examples of leadership definitions and the corresponding questionnaire items:

Definition: The leader makes the organization part of his self picture (Argyris, 1953).

SSI Item: I consider the organization part of me.

Definition: Leadership is the act of influencing the activities of an organized group in its efforts toward goal setting and goal achievement (Stogdill, 1950).

SSI Item: I exert more influence in goal setting and goal achievement than most other persons in my organization.

Eleven male advanced graduate students in psychology served as judges to determine whether a given item represented the trait or situational theory of leadership. Three of these judges, two industrial psychology majors, and one experimental psychology major, also served as judges in the development of the configural criterion scores. The group of eleven judges was composed of seven industrial psychology majors, two social-personality psychology majors, and two experimental psychology majors. The judges were asked to sort the items (typed on

three by five index cards) into one of two categories: (a) those representing the "great man" or trait theory of leadership, and (b) those representing the situational theory of leadership. To familiarise judges with the two theories of leadership before they attempted to categorize the items, a summary of these two theories written by Gibb (1954) was given to each judge. A given item was considered to represent the trait or situational theory of leadership if eight or more judges agreed upon which theory the item represented.[4] Using this criterion of agreement by eight or more judges, 70 items were retained for inclusion in the Self-Situational Inventory. Thirty-six of these items represent the situational theory of leadership, and 34 the trait theory.

Sample items representing the trait and situational theories of leadership are as follows:

Trait: I influence the people around me more than I am influenced by them.

Situational: The members of my group think I can get them what they want.

The respondent indicated on the answer sheet provided, whether he perceived himself in this manner: Never, Seldom, Occasionally, Often, or Always. All 394 participants completed the Self-Situational Inventory.

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[4] The probability of 8 out of 11 judges agreeing on the assignment of a given item to one category by chance is .112. The probability of 9 out of 11 agreeing by chance is .027. Agreement by eight judges was considered the minimum agreement for including items on the SSI, in order to retain a relatively large number of items for linear and configural analyses.

An attempt was made to determine which theory of leadership, the trait or situational, contributed the largest number of valid test (SSK) items. Whenever a set of items showed a significant relationship with the criterion in the cross-validational sample, the number of items from each category (Trait or Situational) was counted. A total of nine item analyses, as described later, were conducted. The final trait versus situational analysis was computed across all nine item analyses. A given item, then, could be counted a maximum of nine times, assuming it was included in a valid set of items in all nine item analyses.

Another procedure was also used to determine the relative value of the trait and situational theories in the construction of our predictor inventory. Correlation coefficients between scoring keys composed of (a) only trait items, and (b) only situational items, and criterion scores were computed. This analysis was restricted to a scoring key composed of a relatively large number of trait and situational items, which was found to have positive value. The odd-even reliabilities, corrected by the Spearman Brown formula, of both the trait and situational subtests were also computed.

Linear Analysis

Item analysis and cross-validation was considered the appropriate method to test the hypothesis that self and situational reports of experienced leaders are dimensionally different from those of inexperienced leaders. The initial step in item analysis was the transferring of each participant's responses to IBM answer sheets. This was done to facilitate machine counting of item responses.

For purposes of item and configural analyses, the MBT and CSR groups were divided randomly into experimental and cross-validational samples. Group F (71 females) was used for an investigation of validity generalization. Raw criterion scores converted into Z scores were used in item analysis, cross-validation, and the investigation of validity generalization. Three groups were used in item analysis and cross-validation; MBT, CSR, and a pooling of the members of both groups (MBT-CSR). All three criteria were used in item analysis; the item analytic criterion, the configural criterion, and the combined criterion. In this manner nine separate item analyses were conducted. The general outline of this design is shown in Figure 1.

Figure 1

Outline of Design Used in Item Analysis

Group	Criterion		
	Item Analytic	Configural	Combined
MBT	1	2	3
CSR	4	5	6
MBT-CSR	7	8	9

The method of item analysis used was the same for each of the nine separate item analyses. The first step in the construction of empirical scoring keys was to select from the experimental group those supervisors with the top and bottom 27% criterion scores. The top 27%

of the subjects were considered "experienced leaders," and the bottom 27% "inexperienced leaders." This designation is considered appropriate because the leadership experiences of respondents were evaluated from their responses to the criterion inventory.

An investigation was then made to determine if there were significant differences in age, education, and intelligence between experienced and inexperienced leaders. If significantly different means and variance for any of these three variables were found between the experienced and inexperienced leader groups, the membership of the inexperienced leader groups was changed, until these differences were no longer significant. This step was facilitated by removing the inexperienced leader group those members whose intelligence test scores were less than 12. The mean Adaptability Test score was 19.75 for the entire sample of 394 persons. Replacements for these persons were obtained by selecting other persons whose criterion scores were closest to the inexperienced leader with the highest criterion score. No significant differences between experienced and inexperienced leaders were found for age and education in the first top and bottom 27% groups selected. For all nine item analyses conducted only six inexperienced leaders were replaced by persons outside the inexperienced leader groups originally selected.

Phi coefficients were then computed between the experienced leader-inexperienced leader dichotomy and the frequency with which the item alternatives were chosen. The item alternatives, as stated previously, were Never, Seldom, Occasionally, Often, and Always. The distribution of the frequency with which each alternative was chosen was divided

in such a manner as to maximize the discrimination between experienced leader and inexperienced leader groups. Edwards (1957) has suggested this method of item selection for use in the Scale Discrimination Technique. Figure 2 illustrates the manner in which frequency distributions were divided in order to enhance discrimination.

Items with phi coefficients significant at the 10% level of significance or less were selected for inclusion in the investigation of cross-validity. An objective procedure was then used to determine the alternatives in each item which could be considered in the "experienced leader" direction. The procedure was as follows: (a) As stated earlier, the distribution of the frequency with which experienced and inexperienced leaders chose the item alternatives was divided in such a way as to maximize discrimination. (b) Experienced leader answers were considered those alternatives on one side of the dividing point in the distribution which were more frequently chosen by experienced leaders than inexperienced leaders. These alternatives were assigned a weight of plus one. The alternatives more frequently chosen by inexperienced leaders than experienced leaders were assigned a weight of zero. For example, in item number 6, illustrated in Figure 2, alternatives four or five are considered "experienced leader" answers and consequently are assigned a weight of plus one. Alternatives one, two, and three, are considered "inexperienced leader" answers and consequently are assigned a weight of zero.

The Self-Situational Inventory score for each subject in the cross-validational sample was determined by adding a one for each "experienced

Figure 2

Procedure Used to Obtain Phi Coefficients with Maximum Discrimination Between Experienced and Inexperienced Leader Groups

SSI item No. 6: Criterion Category

	Experienced Leader	Inexperienced Leader		
			EL	IL
1	1	1		
2	0	3		
3	15	19	16	23
4	25	18	26	19
5	1	1		
	42	42	42	42

phi = .42

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leadership" response he gave. Three scoring keys were developed for each group with each criterion. These three scoring keys consisted of (a) all items significant at or less than the ten per cent level; (b) all items significant at or less than the five per cent level; and (c) all items significant at or less than the one per cent level.

The concurrent cross-validity of these scoring keys was determined by computing product moment correlation coefficients between scores on these keys and criterion scores. Three groups were used in cross-validation: (a) MBT, (b) CSR, and (c) MBT-CSR combined.

The relative value of each criterion (configural, item-analytic, and configural-item analytic combined) was estimated by computing the significance of differences among the highest cross-validity coefficients

obtained with the three criteria. This analysis was restricted to the highest cross-validity coefficient found in each of the three sets of scoring keys with each criterion. Thus the contribution of a given item was counted no more than once in each scoring key.

The reliability of the SSI scores was determined by an odd-even procedure, corrected by the Spearman-Brown formula. The Michigan State Integral Computer (MISTIC) was used in the computation of both the reliability and validity of the predictor scores.

Group F, 71 females, served as a validity generalization sample. The set of scoring keys which showed the highest cross-validity was applied to group F. The MISTIC was also utilized in this step.

It will be recalled that an attempt was made to construct a leadership scale not significantly correlated with intelligence test scores. This step was facilitated by choosing experienced and inexperienced leader groups whose mean intelligence test scores were not significantly different. To determine how well this purpose was fulfilled, intercorrelations among predictor scores, Adaptability Test scores, and criterion scores in the validity generalization sample were computed. The influence of intelligence test scores upon predictor scores was then partialled out. The significance of the difference between the validity generalization coefficient obtained with intelligence partialled out and the validity generalization coefficient obtained without controlling for intelligence was then computed.

Construction of a Verbal Description

An attempt was made to build a verbal description of experienced as contrasted to the less experienced leaders in the sample investigated here. To fulfill this purpose the content of a group of items which showed the highest cross-validity coefficient and significant validity generalization was inspected. These items were divided into two groups--those items which experienced leaders felt applied to them to a greater extent, and those items which experienced leaders felt applied to them to a lesser extent. On the basis of these two groups of items, two hypotheses about the differences in self and situational report between experienced and inexperienced leaders were made.

Configural Analysis

Of the several methods of configural or pattern analysis available, Differential Linkage Analysis (McQuitty, 1959) was utilized in the present study to test the hypothesis that self and situational reports of experienced leaders are configurally different from those of inexperienced leaders. The purpose of Differential Linkage Analysis (DLA) is to differentiate each member of one criterion group from the member or members of another criterion group that he is most like; it is assumed that he will thereby also be differentiated from those who resemble him less. One characteristic of DLA is that the utilization of this method is capable of maximizing the number of types isolated from a matrix of interassociations. An indication of the desirability of employing a method of configural analysis which can utilize many types is provided in a recent leadership investigation by Schiller (1959).

Schiller utilized Lingoes' Multidimensional Scalogram Analysis (MSA), a method of analysis which tends to minimize the number of types isolated, and as a result, increases their dependability. In discussing the limitations of his results, Schiller writes that ". . . with a larger population and a different configural method that tends to isolate a relatively large number of types, the obtained results might be quite different. . ." The present investigation utilizes ILA in order to increase the number of types (or "clusters") obtained.

Two groups were used in the configural analysis, MBT, and CSR. The criterion measure employed with both groups was the criterion which yielded the highest cross-validity coefficient in our linear analysis. In this way ILA results were compared to our item analytic results.

The steps in Differential Linkage Analysis were as follows. The identical procedure was used for groups MBT and CSR, therefore only group MBT is discussed:

1. The 17 experienced and 17 inexperienced leaders were combined into a sample of 34 supervisors. Agreement on dichotomized[5] predictor (SSI) item responses among all 34 persons were computed. The MISTIC was utilized in this step. Seventy items are found on the predictor. Perfect agreement between two persons would be indicated by an agreement score of 70.

2. The matrix of agreement scores obtained in step (1) was divided into four sections; (a) Upper left—Experienced Leaders with

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[5] The five SSI item alternatives were combined in such a manner as to conform to the median of the distribution of the frequency with which these alternatives were chosen. Alternatives Never, Seldom, and Occasionally constituted one category. Alternatives Often and Always constituted the second category.

Experienced Leaders, (b) Lower left--Inexperienced Leaders with Experienced Leaders, (c) Upper right--Experienced Leaders with Inexperienced Leaders, (d) Lower right--Inexperienced Leaders with Inexperienced Leaders.

3. Experienced Leader clusters were isolated using data in the upper left section by Elementary Linkage Analysis (McQuitty, 1957). Experienced Leader clusters are shown in Figures 3 and 4. In Figures 3 through 9 Experienced Leaders are indicated by capital letters enclosed in a circle; Inexperienced Leaders are indicated by small letters enclosed in a square.

4. Inexperienced Leaders were attached to Experienced Leaders, using the information obtained from the upper right section of the matrix of agreement scores. An Inexperienced Leader showing the highest agreement with an Experienced Leader is "attached" to him. For example, in the upper right section of the MBT matrix (Table 17), Inexperienced Leader a scores highest with Experienced Leader D; Inexperienced Leader b scores highest with Experienced Leader O; and Inexperienced Leader q scores highest with Experienced Leader F. Consequently in Figure 3, a is shown to be attached to D by a dotted line. In Figure 4, b is shown to be attached to O by a dotted line. In Figure 3, q is shown to be attached to F by a dotted line.

The upper right section of the matrix was studied jointly with the lower left section to determine reciprocal relationships. For example, when Inexperienced Leader a was found to be more like Experienced Leader O than he is like any other Experienced Leader, the lower left

section was then examined to see if Experienced Leader O is in turn more like Inexperienced Leader n than he is like any other Inexperienced Leader. This condition did obtain and therefore n and O form a reciprocal pair. This reciprocal pair is shown in Figure 4 by a dotted line with two arrows. The agreement score of 64 is indicated on top of the double dotted line mediating between n and O. This entire procedure was continued until every Inexperienced Leader was attached to the appropriate Experienced Leader.

5. Steps (3) and (4) were repeated for the investigation of Inexperienced Leader clusters. Inexperienced Leader clusters were isolated using the data in the lower right section of the matrix in Table 17 by Elementary Linkage Analysis. These clusters are shown in Figures 5 and 6. Experienced Leaders were then attached to Inexperienced Leaders using the data from the lower left section of the matrix. For example, as seen in Table 17, Experienced Leader A shows highest agreement with Inexperienced Leader d, and is therefore attached to him. This is shown in Figure 5 by a dotted line between A and d. The agreement score of 54 between A and d is indicated on the top of the dotted line. This procedure was continued until each Experienced Leader was attached to the appropriate Inexperienced Leader.

6. The information obtained in steps 3, 4, and 5 was summarized graphically on sheets of paper, 19" by 24", and later photographed for purposes of reproduction here. The lengths of both dotted and unbroken lines between people are inversely proportional to the magnitude of the agreement between them. For example, an agreement score of 64 between two people would be represented by a shorter line than an agreement score of 48 between two people.

7. The purpose of Differential Linkage Analysis in this study is to differentiate each Experienced Leader from the Inexperienced Leader he is most like and analogously to differentiate each Inexperienced Leader from the Experienced Leader he is most like. This purpose involves the construction of reasonably dependable scales to differentiate people in one category from another, i.e., every person should score highest on a scale that corresponds to his cluster. A scale is composed of all the predictor items upon which the members of a subcluster agree. A subcluster is defined as a category of people within a larger cluster who are more similar to each other (agree more highly with each other) than they are to anyone outside of that category.

Two differential linkage analyses were performed. The first analysis, consistent with the purpose of DLA as a method of isolating many clusters, attempted to isolate many subclusters. The second analysis attempted to isolate few subclusters. By using both few and many subclusters, the predictive potentialities of DLA could be more fully explored than if only one extreme were utilized. Steps 1 through 6 were followed for both differential linkage analyses. The procedure which involves the isolation of few subclusters is described first because it involves one less step than the alternative procedure described here. The following criteria for the selection of subclusters were utilized in the DLA procedure developed to isolate few subclusters:

a. To enhance the dependability of the subclusters isolated, each subcluster must contain at least three members.

b. Within each subcluster one or more Inexperienced Leaders must be attached to an Experienced Leader or one or more Experienced Leaders must be attached to an Inexperienced Leader. The association of one or more members from one category to another is described as a crucial point. Crucial points are shown in Figures 3, 4, and 7 at all points in which Inexperienced Leaders (small letters in boxes) are attached to Experienced Leaders (capital letters in circles) by a dotted line, or analogously in Figures 5, 6, 8, and 9 where Experienced Leaders are joined to Inexperienced Leaders by dotted lines.

c. An attempt was made to isolate subclusters in which relatively high agreement was shown among the members of the subcluster. Relatively high agreement was arbitrarily chosen as a subcluster in which the agreement score between the two most dissimilar members of the subcluster was greater than or equal to 48.[6]

For example in subcluster "a m d," shown in Figure 5, a agrees with m on 53 predictor items; a agrees with d on 48 predictor items; and m agrees with d on 55 predictor items. These agreement scores are found in Table 16. Inexperienced Leaders a, m, and d therefore form an Inexperienced Leader Scale. Three members comprise this scale and there is at least one crucial point (J, C, and G are attached to m). Consequently the three criteria just specified (a, b, and c) have been met in the construction of the Inexperienced Leader Scale a m d.

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[6] Tables 17 and 18 served as a guide in the selection of this cutting point. Forty-eight is the lowest maximum agreement score found in any column of the matrix of agreement scores for groups MDT and CSR.

8. Steps a, b, and c were followed for both Experienced and Inexperienced Leader clusters. The scales obtained were then further modified in the following manner:

a. A temporary scale was composed of all the predictor items upon which the members of a subcluster agreed.

b. To arrive at a final scale, those items on each Experienced Leader Scale which were found to be in common with all Inexperienced Leader scales were removed. This step was facilitated by punching out all temporary scales on machine key stencils. Each Experienced Leader scale was then placed on top of all Inexperienced Leader scales. Any item on the Experienced Leader scale which was in agreement with all Inexperienced Leader scales was then removed. This step is based upon the assumption that test items agreed upon by everyone in two categories cannot enhance discrimination between those two categories. Analogously SSI items on Inexperienced Leader scales in common with all Experienced Leader scales were also removed.

The steps followed in the HLA procedure which attempted to isolate many subclusters were identical to the steps followed to isolate few subclusters, except for step 7c. In lieu of the criterion established in step 7c, the following criterion developed to isolate many subclusters was utilized: Cluster i with any j which joins it directly. If this gives only two in a cluster, then join with these two the one other where the difference in its association with i is maximal over that with the I. (A crucial point is any i joined by J.) For example, at crucial point K in Figure 4, N is joined directly to K. L and I are joined indirectly and are therefore possible candidates for inclusion in the scale composed of N and K.

The following formula, based upon the last mentioned criterion, was applied in order to obtain maximum differentiation from f:

$$\frac{LK + LN}{2} - Lf = \frac{51 + 62}{2} - 47 = 9.5$$

$$\frac{IN + IK}{2} - If = \frac{55 + 54}{2} - 50 = 4.5$$

L was therefore chosen for inclusion in the subcluster NK because his difference in association with K and N is maximal over that with f. An alternative to his criterion was necessary, however, in any case where the application of the above formula resulted in ties. In this case I would be scored in turn on all scales composed of each indirect associate combined with the two direct associates. The scale composed of the two direct associates and one indirect associate upon which person I scored highest was then selected.

For purpose of cross-validation all Experienced and Inexperienced Leaders in the cross-validational sample (groups MDT and CSR), as determined by position above and below the median on the configurally scored criterion, were scored on every scale obtained in steps one through eight. This procedure was followed separately for the scales developed from the method designed to isolate few subclusters. The hypothesis investigated was that Experienced Leaders should have higher scores on Experienced Leader Scales than Inexperienced Leaders. Scores on the predictor scales were expressed in per cents because the scales developed had unequal numbers of items. Chi square was considered the appropriate statistic to investigate this hypothesis. Experienced leaders and inexperienced leaders were assigned to the category of the

fourfold contingency table in which they scored highest. Chi square cell distributions obtained separately for groups MBT and CSR were then combined to arrive at a chi square estimate based upon a greater number of cases. This combination of cell frequencies was considered an appropriate procedure because ILA was conducted separately for groups MBT and CSR. This procedure involved the utilization of within group criterion Z scores. Combining cell frequencies would thus retain the within group comparisons. Another method of arriving at a chi square estimate based upon a larger number of cases was also utilized. Criterion Z scores, computed across groups, were used to assign persons to their position above or below the median. This procedure, however, was considered less appropriate because ILA was not attempted with the MBT-CSR combined group.

Comparison of Configural and Linear Analyses

In order to make a direct comparison of configural and linear analyses, item analyses with the configural criterion for groups MBT and CSR were reanalyzed in terms of chi square. For both groups MBT and CSR the item analytic scale showing the highest cross-validity was utilized. Medians of the distribution of scores on these two item analytic scales were computed. The top 50% of persons on the configural criterion scores were considered Experienced Leaders, and the bottom 50%, Inexperienced Leaders. The two columns in the four fold contingency table were (a) below the median on the predictor, and (b) above the median on the predictor. The same procedure was utilized for group MBT-CSR combined. However, criterion Z scores computed across groups

were utilised. Additionally it was necessary to use a scoring key developed for group MBT-CSR combined. Another chi square was also computed. For purposes of comparison with DLA, chi square cell distributions obtained separately for groups MBT and CSR were combined. This procedure was considered less appropriate because a linear analysis was conducted with group MBT-CSR combined.

An attempt was made to express the cross-validity of Differential Linkage Analysis in terms of product-moment correlation coefficients. Correlations were computed for groups MBT and CSR between configural criterion scores and per cent agreement on the scale upon which each person scored highest. These per cent scores were first normalized according to the T score procedure suggested by Guilford (1956). However, a linear relationship was not predicted. The assumption made was that persons with high and low criterion scores are "stronger" members of their respective clusters and should therefore manifest higher agreement on scales corresponding to their criterion category.

Interrelationships Among Experimental Variables

Intercorrelations among criterion scores, age, education, intelligence, and number of people supervised were computed. The criterion scores used in this analysis were the combined criterion scores. The combined criterion scores, as will be recalled, represent an average of the configural and item analytic criterion scores. Predictor scores were not entered into these interrelationships because no one predictor scoring key was administered to all 3¼ subjects. Complete information on age, education, intelligence, and number of people supervised was

available for 366 subjects. The remaining 28 subjects failed to report either their age and/or education and therefore had to be excluded from this part of the analysis.

CHAPTER III

RESULTS

Analysis of the Criterion

The reliability of the configural judgments by the nine judges is shown in Table 2. Two estimates of the reliability are presented. The intraclass correlation coefficient represents the average inter-correlation of the nine judges' ratings. This correlation coefficient of .708 could also have been computed by correlating each judge's ratings with every other judges' ratings, and the averaging the 36 (n (n-1)/2) correlation coefficients. The second correlation coefficient (r = .956) shown in Table 2 describes the reliability of the sums or means of the judges' ratings. According to Guilford (1956) this method of averaging the judges' ratings reduces the relative importance of errors, leaving the relationships enhanced. The score-rescore reliability of the item analytic criterion was .98.

Eight out of the nine configural criterion judges returned the questionnaire, asking judges which "process" they used in making the leadership evaluations. All eight of these judges indicated that their numerical evaluations were based on some type of global, qualitative assessment of the leadership experiences reflected in response to items on the BII. Three of these judges said they looked for the "importance" of leadership experiences in arriving at overall judgments. Three other judges stated they tried to use "as much information as possible" in arriving at their global evaluations. The two remaining judges said they used a global approach and gave no further elaboration.

Table 2

Reliability of Configural Criterion Scores by Intraclass Correlation

Source	SS	df	MS	F	
Judges	16.053	8	2.01	6.01)	
Supervisors	2995.050	393	7.62	22.81)	$p < .001$
Residual	1051.392	3144	.33		
Total	4062.495	3545			

$$r_{oo} = \frac{\text{MS Supervisors} - \text{MS Residual}}{\text{MS Supervisor} (k - 1) \text{ MS Residual}} = .708$$

$$r_{xx} = \frac{\text{MS Supervisors} - \text{MS Residual}}{\text{MS Supervisors}} = .956$$

Across group comparisons of raw item analytic and configural criterion scores are shown respectively in Tables 3 and 4. The results for both sets of criterion scores are identical with respect to the order of mean criterion scores for groups MBT, CSR, and F. For both the item analytic and configurally scored criterion, group MBT has the highest mean score, and group F the lowest mean score. The mean item analytic criterion score for group MBT is 5.14; group CSR, 4.07; group F, 3.44. The mean configural criterion score for group MBT is 29.78; group CSR, 25.84; and group F, 22.41. Differences between all possible pairs of means also show perfect correspondence for the item analytic and configural criterion scores. With both sets of criterion scores, group MBT is significantly higher than groups CSR and F, while group CSR is higher than group F.

Selection of SSI (Predictor) Items

Table 5 summarizes the eleven judges' categorizations of the 70 items chosen for inclusion in the predictor. Thirty six were designated as representing the situational theory, and thirty-four the trait theory of leadership. Column S indicates the number of judges who nominated each item as representing the situational theory of leadership. Column T indicates the number of judges who nominated each item as representing the trait theory of leadership. Column "Category" summarizes columns T and S by indicating whether a given item was nominated to represent the trait or situational theory of leadership. There was significantly better agreement on items designated as trait items. The average agreement for trait items was 9.91; the average agreement for

Table 3

Analysis of Variance of Raw Item Analytic Criterion Scores, and Group Mean Comparisons

Source	SS	df	MS	F	
Between Groups	153.221	2	76.611	15.86	$p < .01$
Within Groups	1889.036	391	4.831		
Total	2042.257	393			

	CSR	MBT	F
CSR	-	1.08*	.62*
MBT		-	1.70*
F			-

* All differences between pairs of means significant at better than the 5% level, as estimated by Tukey's Q procedure.

Table 4

Analysis of Variance of Raw Configural Criterion Scores and Group Mean Comparisons

Source	SS	df	MS	F	
Between	2627.321	2	1313.660	20.83	$p < .01$
Within	24653.055	391	63.051		
Total	27280.376	393	-		

	MBT	CSR	F
MBT	-	3.94*	7.37*
CSR		-	3.43*
F			-

* Difference between pair of means significant at better than the .05 level, as estimated by Tukey's Q procedure.

situational items was 9.11. The statistical significance of this difference ($p = .02$) was determined by the median test, as shown in Table 6.

Item Analysis with Experimental Sample

The investigation of differences between Experienced and Inexperienced leaders on age, education, and Adaptability Test scores, is shown in Tables 7, 8, and 9. No difference between any pair of means was significant at or less than the five per cent level. None of the variances between any two groups were found to be significantly heterogeneous.

Table 10 summarizes the number of phi coefficients found significant for all nine item analyses. One hundred and fifty-nine out of 630 phi coefficients computed between item alternatives and the dichotomous criteria were significant at or beyond the ten per cent level of significance. The one predictor item which was found to have a significant relationship with the criterion in all nine item analyses is the following: "I work hard all the time." The response in the experienced leadership direction is any alternative except Always, i.e., Never, Seldom, Occasionally, and Often are "experienced leader" alternatives.

Cross-Validation and Validity Generalization

Cross-validity results with groups MBT, CSR, and MBT-CSR combined are summarized in Tables 11, 12, and 13. Scoring keys developed on the basis of relationship with the item analytically scored criterion in the cross-validational sample failed to show significant cross-validity.

Table 5

Classification of SSI Items, According to Trait Versus Situational Dichotomy

SSI Item Number		T*	S*	Category*
1.	The members of my group think I can get them what they want.	2	9	S
2.	I influence people around me more than I am influenced by them.	10	1	T
3.	I control others in the pursuit of a common cause.	9	2	T
4.	I create conditions such that my position eventually becomes unnecessary.	3	8	S
5.	If the members of my group took a poll, I would be voted the leader.	3	8	S
6.	When I move in a particular direction, others follow me.	11	0	T
7.	I am accepted and noticed by people under me.	9	2	T
8.	I help people reach a goal they think is desirable.	3	8	S
9.	My authority comes from the people under me.	1	10	S
10.	My goal is to "become one of them."	2	9	S
11.	Many of my actions disregard the ideas of members of the group.	10	1	T
12.	My acts increase my understanding of and my knowledge about what is going on in the group.	2	9	S
13.	I stress making it possible for members of an organization to work together.	2	9	S
14.	I exert more influence in goal setting or goal achievement than most other persons in my organization.	9	2	T

Table 5 (cont.)

SSI Item No.		T*	S*	Category*
15.	I get things done on the basis of my own initiative.	11	0	T
16.	I help the members of the group to learn from their experience.	1	10	S
17.	I keep responsibility for making decisions wholly within the group.	2	9	S
18.	I help the group to determine its procedures.	1	10	S
19.	I prod men under me toward achievement and effort.	9	2	T
20.	I set levels for achievement and effort.	9	2	T
21.	Some of my acts express disapproval of men under me.	9	2	T
22.	An important part of my job is to keep group members informed.	0	11	S
23.	I help bring about the sharing of information in my group.	1	10	S
24.	I help individual members adjust to the group.	1	10	S
25.	I try to act on behalf of the members of my group.	0	11	S
26.	Mixing with the men under me is an important part of my job.	2	9	S
27.	I help bring about mutual cooperation among people.	0	11	S
28.	A large part of my work involves exercising authority and making decisions.	9	2	T
29.	I plan my day's activities in detail.	10	1	T
30.	I see that a member is rewarded for a job well done.	3	8	S

Table 5 (cont.)

SSI Item No.		T*	S*	Category*
31.	I have members share in making decisions.	0	11	S
32.	I put group welfare above the welfare of any member.	2	9	S
33.	I draw a definite line between myself and the rest of the group.	10	1	T
34.	I get approval on minor matters before going ahead.	3	8	S
35.	I maintain definite standards of performance.	10	1	T
36.	I set an example by working hard myself.	10	1	T
37.	I yield to others in a discussion.	3	8	S
38.	What other members of my group attempt to achieve means a lot to me.	2	9	S
39.	I try to keep things as they are.	9	2	T
40.	I follow the guidance of the group.	2	9	S
41.	I am successful in getting other people to follow me.	10	1	T
42.	I organize new ideas and practices.	10	1	T
43.	I believe firmly, defend doggedly.	9	2	T
44.	I always get the job done.	10	1	T
45.	I keep my eyes open for opportunities in advance.	9	2	T
46.	I act superior to members of my group.	10	1	T
47.	I stress being a socially acceptable person in my mixing with other members of the organization.	2	9	S
48.	I stress getting the job done.	11	0	T

Table 5 (cont.)

SSI Item No.		T[a]	S[a]	Category[a]
49.	I'm aware of the opinion of group members on matters important to them.	1	10	S
50.	I am successful in maintaining "esprit de corps" among the members of my group.	3	8	S
51.	I help the group organise itself.	1	10	S
52.	My actions influence the organisation rather than individual persons.	2	9	S
53.	My agressive actions help me control people under me.	11	0	T
54.	It is through special abilities that I can control other people.	11	0	T
55.	I possess certain abilities which distinguish me from the rest of the group.	10	1	T
56.	I am able and willing to assist group members in doing what they want to do.	1	10	S
57.	I am very sure of most of my actions.	11	0	T
58.	I'm pretty well able to size up my own assets and abilities.	10	1	T
59.	My approach to my job is characterised by my ambition and drive.	11	0	T
60.	I work hard all the time.	11	0	T
61.	I'm enthusiastic about most of my activities.	11	0	T
62.	I find working with my group interesting and challenging.	1	10	S
63.	I seem to talk more than most people.	10	1	T
64.	I bring about acts which help solve mutual problems.	3	8	S
65.	I generally get along with almost everyone in my group.	2	9	S

Table 5 (cont.)

SSI Item No.		T*	S*	Category*
66.	My actions tend to increase cooperation among group members.	3	8	S
67.	I consider the organization part of me.	3	8	S
69.	The group is dependent upon me.	3	8	S
70.	I am easy to understand.	9	2	T

* Entries under columns T and S refer to the number of judges out of eleven who considered a given item to belong to the T and S category respectively. Entries under the Category column indicate whether a given item belongs to the trait (T) or situational (S) category.

The probability of all eleven judges agreeing by chance is .000; ten judges, .005; nine judges, .027; eight judges, .112.

Table 6

Comparison of Judges' Agreement on Trait Versus Situational Items

		Item Category		
		Trait	Situational	
Agreement	Above	22	13	35
	Below	12	23	35
		34	36	70

$\chi^2 = 5.72$ ($p = .02$)

Note: Above and Below refer to number of items with agreement above or below median agreement. Agreement by nine judges is considered the dividing point of the distribution because the median lies slightly above 9 agreements.

Table 7

Differences Between Experienced and Inexperienced Leaders, as Determined by Item Analytic Criterion Scores, on Age, Education, and Adaptability Test Scores

Group		Age		Education		Adaptability Test Score	
		EL*	IL**	EL	IL	EL	IL
MBT (N=17)	mean	45.24	45.12	12.76	12.35	22.88	21.11
	S.E. diff.	1.00		.57		1.85	
	t	.12		.72		.96	
CSR (N=25)	mean	44.48	44.64	13.16	12.96	14.72	19.20
	S.E. diff.	2.64		.26		1.39	
	t	.06		.76		.37	
MBT-CSR (N=42)	mean	44.05	44.71	13.19	12.40	21.48	20.07
	S.E. diff.	1.99		.19		.78	
	t	.34		1.34		1.81	

* EL refers to Experienced Leader
** IL refers to Inexperienced Leader

Table 8

Differences Between Experienced and Inexperienced Leaders, As Determined by Configural Criterion Scores, on Age, Education, and Adaptability Test Scores

Group		Age		Education		Adaptability Test Score	
		EL*	IL**	EL	IL	EL	IL
MBT (N=17)	mean	44.29	44.59	12.52	12.52	22.24	21.29
	S.E. diff.	3.30		.62		1.84	
	t	.09		.00		.52	
CSR (N=25)	mean	46.08	44.52	13.96	12.36	21.04	19.56
	S.E. diff.	2.94		.82		1.43	
	t	.53		1.94		1.03	
MBT-CSR (N=42)	mean	45.93	42.66	13.33	12.57	21.62	20.93
	S.E. diff.	2.01		.47		.95	
	t	1.13		1.62		.73	

* EL refers to Experienced Leader
** IL refers to Inexperienced Leader

Table 9

Differences Between Experienced and Inexperienced Leaders, as Determined by Combined Criterion Scores, on Age, Education, and Adaptability Test Score

Group		Age		Education		Adaptability Test Score	
		EL*	IL**	EL	IL	EL	IL
MBT (N=17)	mean	45.81	42.86	12.83	11.82	23.06	20.35
	S.E. diff.	4.22		2.02		1.89	
	t	.70		.49		1.43	
CSR (N=25)	mean	44.72	43.88	13.72	12.12	20.16	19.00
	S.E. diff.	2.66		.24		1.36	
	t	.32		.68		.85	
MBT-CSR (N=42)	mean	45.31	42.76	13.38	12.76	21.52	20.31
	S.E. diff.	2.02		.54		1.08	
		1.26		1.15		1.12	

* EL refers to Experienced Leader
** IL refers to Inexperienced Leader

Table 10

Number of Predictor - Criterion Phi Coefficients Significant in Experimental Sample

		Criterion			
		Item Analytic	Conflictural	Combined	Total
	Level				
MBT	.01	2	3	1	5
	.05	2	5	2	10
	.10	7	6	6	19
	total	11	14	9	34
CSR	.01	2	2	2	6
	.05	10	5	6	21
	.10	11	14	7	32
	total	23	21	15	59
MBT-CSR	.01	7	3	3	13
	.05	10	9	8	27
	.10	11	7	8	26
	total	28	19	19	66
				Grand total	= 159

Scoring keys developed on the basis of relationships with configural and combined criterion scores, however, generally showed significant cross-validity. Six out of the nine cross-validity coefficients based on the configural criterion were significant at or better than the .05 level. Seven out of the nine cross-validity coefficients based on the combined criterion were significant at or better than the .05 level. For all three criteria, cross-validity coefficients ranged from -.146 to .428, with a median of .177. The cross-validity coefficient of .428 found with the configural criterion (group CSR; seven item scoring key) is significantly greater than the highest cross-validity coefficient found with the item analytic criterion for group CSR. No other analogous significant differences were found. For example, the highest cross-validity coefficient found for the combined criterion with group CSR was .317. This is not significantly different from .048--highest cross-validity coefficient found for the item analytic criterion with group CSR. The odd-even reliabilities, corrected for full length of the test, for the nine scoring keys comprised of items significant at or better than the .10 level ranged from .064 to .759, with a median of .484.

Validity generalization results are shown in Table 14. Scoring keys comprised of items significant at the .10 level or better, and the .05 level or better, showed significant validity generalization. A scoring key comprised of two items significant at the .01 level failed to show significant validity generalization. The Self-Situational Inventory scoring key applied to the validity generalization sample is shown in Table 15. This scoring key composed of 21 items showed the highest cross-validity ($r = .428$) of all the scoring keys utilized in cross-validation.

Table 11

Cross-Validities and Reliabilities of SSI Scoring Keys, Using Configural Criterion Scores

Group	N	Significance Levels in Subtest	No. Items	Odd-even Reliability	Spearman-Brown	Validity
MBT	63	.01; .05; .10	14	.546	.706	.177
		.01; .05	8	.372	.542	.382**
		.01	3	.205	.340	.135
CRS	98	.01; .05; .10	21	.297	.453	.199*
		.01; .05	7	.160	.276	.428**
		.01	2	.421	.593	.225*
MBT-CRS	161	.01; .05; .10	19	.599	.750	.167*
		.01; .05	9	.154	.267	.137
		.01	3	.148	.258	.263**

* Significant at .01 level.
** Significant at .05 level.

Table 12

Cross-Validities and Reliabilities of SSI Scoring Keys, Using Item Analytic Criterion Scores

Group	N	Significance levels in subtest	No. Items	Odd-even Reliability	Spearman-Brown	Validity
MBT	63	.01; .05; .10	11	.368	.538	.079
		.01; .05	4	.202	.336	.238
		.01	2	.114	.205	-.085
CRS	98	.01; .05; .10	23	.310	.484	.034
		.01; .05	12	.108	.195	.057
		.01	2	.156	.269	-.146
MBT-CRS	161	.01; .05; .10	28	.612	.759	.090
		.01; .05	17	.535	.697	.012
		.01	6	.170	.290	.034

Table 13

Cross-Validities and Reliabilities of SCI Scoring Keys, Using Combined Criterion Scores

Group	N	Significance levels in subtest	Items	Odd-even Reliability	Spearman-Brown	Validity
MBT	63	.01; .05; .10	9	.231	.375	.318*
		.01; .05	3	.266	.420	.168
		.10[1]	6	.221	.362	.264*
CRS	98	.01; .05; .10	15	.033	.064	.153
		.01; .05	8	.210	.347	.317**
		.01	2	.201	.335	.320**
MBT-CRS	161	.01; .05; .10	19	.137	.241	.232**
		.01; .05	11	.321	.486	.189*
		.01	3	.193	.324	.206*

[1] Only one item in this set was significant at the .01 level, while six were significant at the .10 level; consequently these six items were used to comprise a scoring key.

** Significant at .01 level.
* Significant at .05 level.

Table 14

Group CSR Scoring Key Applied to V
Validity Generalisation Sample (N = 71)

N	Significance levels in subtest	No. Items	Odd-even Reliability	Spearman-Brown	Validity
71	.01; .05; .10	21	.169	.289	.452**
	.01; .05	7	.111	.199	.327**
	.01	2	.235	.381	.126

** Significant at .01 level.

The effects of intelligence were partialled out from the validity generalization coefficient obtained using all items significant at or better than the .10 level. This coefficient was reduced a statistically insignificant amount; from .452 to .446. The partial correlation procedure is summarized in Table 15.

Configural Analysis

The configurally scored criterion was used in the configural analysis portion of this investigation because the highest cross-validity coefficient in linear analysis was obtained with the configural criterion (.428). Comparing Differential Linkage Analysis to an item analytic method of known positive value was considered an appropriate test of the former method.

The matrix of agreement scores among the 34 MBT Experienced and Inexperienced Leaders is shown in Table 17. The matrix of agreement scores among the 50 CSR Experienced and Inexperienced Leaders is shown in Table 18. Both matrices are divided into four section; upper left, upper right, lower left, and lower right.

Three MBT Experienced Leader clusters were found using the data in the upper left section of the matrix in Table 17. Cluster one is composed of seven members; E, F, B, M, D, C, and P. Cluster two is composed of eight members; I, N, K, L, A, O, H, and Q. Cluster three is composed of two members, the reciprocal pair G and J. MBT Experienced Leader clusters are shown in Figures 3 and 4. Three MBT Inexperienced Leader clusters were isolated using the data in the lower right section of the matrix. Cluster one consists of 13 members;

Table 15

Effects of Intelligence Partialled Out In
Validity Generalization Sample (N = 71)

	(1) SSI	(2) BII	(3) ADT
(1)	-	.452	.134
(2)		-	.035
(3)			-

$r_{12.3} = .446^{*}$

* Not significantly different from r_{12}

Note: SSI = Predictor
BII = Criterion
ADT = Intelligence (Adaptability Test)

Table 16

SSI Scoring Key Applied to Validity Generalization Sample

SSI Number		Altern.* in Exp. Leader Direction	Significance Level
1.	The members of my group think I can get them what they want.	4, 5	.01
5.	If the members of my group took a poll, I would be voted the leader.	4, 5	.01
9.	My authority comes from people under me.	1, 2, 3	.05
39.	I try to keep things as they are.	1, 2, 3	.05
44.	I always get the job done.	1, 2, 3, 4	.05
50.	I am successful in maintaining "esprit de corps" among the members of my group.	4, 5	.05
58.	I'm pretty well able to size up my own assets and liabilities.	1, 2, 3	.05
7.	I am accepted and noticed by people under me.	4, 5	.10
12.	My acts increase my understanding of and my knowledge about what is going on in the group.	4, 5	.10
13.	I stress making it possible for members of an organization to work together.	5	.10
14.	I exert more influence in goal setting and goal achievement than most other persons in my organization.	4, 5	.10
22.	An important part of my job is to keep group members informed.	5	.10
24.	I help individual members adjust to the group.	1, 2, 3	.10
26.	Mixing with the men under me is an important part of my position.	1, 2, 3	.10

Table 16 (cont.)

SSI No.		Altern.* in Exp. Leader Direction	Significance Level
29.	I plan my day's activities in detail.	1, 2, 3	.10
32.	I put group welfare above the welfare of any member.	4, 5	.10
35.	I maintain definite standards of performance.	1, 2, 3	.10
41.	I am successful in getting other people to follow me.	1, 2, 3, 4	.10
60.	I work hard all the time.	1, 2, 3, 4	.10
62.	I find working with my group interesting and challenging.	5	.10
68.	I consider the organization part of me.	5	.10

* Codes: Never (1)
Seldom (2)
Occasionally (3)
Often (4)
Always (5)

o, b, l, n, i, c, j, q, d, a, m, g, and e. Cluster two consists of two members, the reciprocal pair h and p. Cluster three also consists of two members, the reciprocal pair f and k. MBT Inexperienced Leader clusters are shown in Figures 5 and 6.

One large cluster was isolated in the upper-left section of the matrix in Table 18 (group CSR). All 25 group CSR Experienced Leaders are found in cluster one, shown in Figure 7. Two clusters were isolated in the lower right section of the CSR matrix (Inexperienced Leaders). Cluster one, shown in Figure 8, consists of 23 Inexperienced Leaders--all Inexperienced Leaders except d and e. Cluster 2, shown in Figure 9, consists of the reciprocal pair d and e.

The method of Differential Linkage Analysis applied to isolate few clusters yielded four Experienced Leader and three Inexperienced Leader scales for group MBT. These scales are listed in Table 19. Using the same method, three Experienced Leader Scales and four Inexperienced Leader Scales were constructed for group CSR. These scales are listed in Table 20.

Nine Experienced Leader Scales and seven Inexperienced Leader Scales were constructed for Group MBT, using the method of Differential Linkage Analysis applied to isolate many subclusters. The members comprising these 16 scales are listed in Table 21. Using the same method, 13 Experienced and 9 Inexperienced Leader scales were constructed for group CSR. It will be recalled that an additional criterion for the selection of subclusters was considered necessary when the formula illustrated in step 7c (Chapter II) produced ties between two or more

Table 17

Matrix of Agreement Scores Among the 34 MBT Supervisors Chosen From the Experimental Sample

UPPER LEFT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A		52	43	47	51	53	43	51	51	41	51	54	47	50	54	48	53
B	52		47	51	53	57	43	53	49	45	51	56	47	54	54	50	57
C	43	47		52	44	44	42	48	42	39	44	47	48	47	47	49	44
D	47	51	52		48	54	41	52	50	46	52	51	52	51	53	53	54
E	51	53	44	48		62	42	56	50	41	52	61	46	57	59	50	54
F	53	57	44	54	62		38	56	50	39	50	59	52	57	57	52	56
G	43	43	42	38	42	38		42	46	52	42	43	38	43	45	41	42
H	51	53	48	52	56	56	42		48	41	52	59	52	53	61	53	52
I	51	49	42	50	50	50	46	48		42	54	53	48	55	49	50	50
J	42	45	40	46	39	39	52	41	42		47	42	38	42	50	41	48
K	51	51	44	52	52	50	41	52	54	47		51	48	55	55	45	52
L	54	56	47	51	61	59	43	59	53	41	51		45	62	62	52	57
M	47	47	48	52	46	52	37	52	48	38	48	45		49	49	50	50
N	50	54	47	51	57	57	43	53	55	41	55	62	49		58	51	55
O	54	54	47	53	59	57	45	61	49	50	55	62	49	58		51	57
P	48	50	49	53	50	52	40	53	50	41	45	52	50	51	51		49
Q	53	57	44	54	54	56	41	52	50	48	52	57	50	55	59	49	

Table 17
(cont.)

LOWER LEFT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A	46	44	47	51	43	45	45	47	47	43	45	42	45	42	44	49	42
B	53	53	44	48	58	58	40	56	48	42	48	57	48	53	61	50	55
C	53	57	42	50	58	58	44	56	48	44	54	61	48	57	59	52	54
D	54	54	45	55	55	59	41	57	53	43	49	56	53	52	60	55	53
E	49	53	40	42	58	54	40	50	48	36	46	57	44	53	53	47	52
F	51	45	42	48	48	44	48	48	50	47	54	47	42	49	51	44	46
G	42	46	49	49	47	49	39	45	41	37	45	44	53	46	48	45	47
H	45	49	46	48	46	46	46	46	46	43	42	47	40	47	47	52	42
I	50	52	45	51	57	55	38	53	49	40	51	56	47	56	56	51	55
J	51	53	38	44	60	60	44	55	49	41	54	58	45	55	57	45	54
K	52	54	45	51	47	49	45	51	49	48	53	52	51	52	54	53	56
L	47	49	41	48	52	52	42	54	48	42	50	49	54	53	57	50	52
M	49	49	52	54	48	50	48	54	42	50	48	51	50	49	55	52	50
N	52	52	47	49	57	55	43	57	47	46	51	60	47	58	64	47	57
O	44	54	40	51	53	53	47	51	47	47	51	54	47	52	54	46	53
P	45	47	48	50	46	50	44	48	44	47	46	47	40	49	49	52	46
Q	46	52	45	47	57	59	42	52	47	40	47	52	47	48	56	49	51

Table 17
(cont.)

UPPER RIGHT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A	46	53	53	54	49	51	42	45	50	51	52	47	49	52	44	45	46
B	44	53	57	54	53	45	46	49	52	53	54	49	49	52	54	47	52
C	47	44	44	45	40	42	49	46	45	40	45	42	52	47	48	48	45
D	51	48	50	55	42	48	49	48	51	44	51	48	54	49	51	50	47
E	43	58	58	55	58	48	47	46	57	60	47	52	48	57	53	46	57
F	45	58	58	59	54	44	49	46	55	60	49	52	50	55	53	50	52
G	45	40	44	43	40	48	39	46	36	44	45	42	48	43	47	44	42
H	47	56	56	57	50	48	45	46	53	55	51	54	54	57	51	48	57
I	47	48	52	53	48	50	40	46	49	49	49	48	44	47	47	44	47
J	43	42	44	43	35	47	37	43	40	41	48	42	50	46	47	47	41
K	45	48	54	49	46	54	45	42	51	54	53	50	48	51	51	46	47
L	42	57	60	56	57	47	44	47	56	58	42	49	51	60	54	47	52
M	45	43	48	53	44	42	53	40	47	45	51	54	50	47	47	40	47
N	42	53	57	52	53	49	46	47	56	55	52	53	49	52	49	49	48
O	43	61	59	60	53	51	48	47	56	57	54	55	55	64	54	49	56
P	49	50	52	55	47	44	45	52	51	45	53	50	52	47	46	52	49
Q	42	55	54	53	52	46	47	42	55	54	56	52	50	57	53	46	51

Table 17
(cont.)

LOWER RIGHT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
A		43	45	48	39	53	44	47	42	42	48	43	53	40	42	49	49
B	43		58	57	56	44	43	46	57	56	52	56	48	59	49	48	57
C	45	58		52	56	48	47	46	53	53	52	54	54	59	52	46	55
D	48	57	52		53	49	52	49	52	52	52	55	55	56	58	47	58
E	35	56	56	53		38	47	42	55	53	45	52	44	55	49	42	49
F	53	44	48	49	37		39	50	45	46	55	46	54	47	52	46	47
G	44	43	47	50	47	39		36	44	44	42	46	47	46	46	39	45
H	47	46	46	49	42	50	39		52	50	49	44	48	45	45	54	45
I	42	57	53	52	55	45	44	52		52	52	49	47	60	44	53	50
J	42	56	58	52	53	46	44	50	52		48	52	46	55	50	44	56
K	48	52	52	52	45	55	43	49	52	48		52	52	52	52	52	46
L	43	56	54	55	52	46	46	44	49	52	52		50	53	49	42	52
M	53	48	54	55	44	54	47	48	47	46	52	50		52	49	52	52
N	42	52	52	56	55	47	46	45	60	55	52	53	52		48	52	54
O	42	49	52	54	49	52	46	45	44	50	52	49	49	48		43	50
P	49	48	46	47	42	46	39	52	53	44	52	42	52	52	43		49
Q	49	57	55	58	49	47	45	45	50	56	46	52	52	54	50	49	

Table 18

Matrix of Agreement Scores Among the 50 CSR Supervisors Chosen From the Experimental Sample

UPPER LEFT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
A		52	49	48	43	49	45	48	50	51	52	39	50	40	43	47	47	50	48	39	40	37	52	53	44
B	52		53	50	47	47	39	42	54	49	52	45	54	44	47	53	48	52	50	31	38	37	56	52	47
C	49	53		47	46	44	42	49	49	44	45	50	53	47	44	54	48	47	51	38	49	40	53	48	41
D	48	50	47		51	47	49	48	58	50	54	45	50	44	47	53	45	50	54	41	43	39	56	50	49
E	43	47	46	51		48	42	47	55	46	55	42	55	43	46	50	46	53	49	34	38	31	51	55	45
F	49	47	44	47	48		46	47	51	47	51	44	49	37	48	48	48	47	49	37	38	40	51	49	44
G	45	39	42	49	42	46		49	47	49	45	48	34	47	42	42	42	41	49	39	42	44	47	39	41
H	48	42	49	48	47	47	49		52	50	52	45	48	48	45	51	49	48	47	45	45	39	50	38	46
I	50	54	49	58	55	51	47	52		54	58	47	58	48	47	55	50	58	54	35	41	33	64	58	50
J	51	49	44	50	46	47	49	50	54		59	44	49	45	54	49	46	57	50	34	40	38	58	51	46
K	52	52	45	54	55	51	45	52	58	59		41	54	44	55	53	46	68	52	35	36	33	60	60	51
L	39	45	50	45	42	44	48	45	47	44	41		43	49	46	44	45	41	45	42	48	44	47	37	37
M	50	54	53	50	55	49	39	48	58	49	54	43		40	45	53	47	56	48	32	40	33	58	56	42
N	40	44	47	44	43	37	47	48	48	45	44	49	40		43	49	44	42	42	37	41	45	46	41	39
O	43	47	44	47	46	48	42	45	47	54	55	46	45	43		48	43	51	49	39	40	44	51	47	48
P	47	53	54	53	50	48	42	51	55	49	53	44	53	49	48		50	49	55	44	41	38	55	51	47
Q	47	48	48	45	46	48	42	49	50	46	46	45	47	44	43	50		46	49	38	45	36	52	47	42
R	50	52	47	50	53	47	41	48	58	57	62	41	56	42	51	49	46		51	29	39	28	62	60	44
S	48	50	51	54	49	49	49	47	54	50	52	45	48	42	49	55	49	51		36	44	37	56	50	44
T	39	31	38	41	34	37	39	45	35	35	35	42	33	37	32	44	38	29	36		39	38	35	31	30
U	40	38	49	43	38	38	42	45	41	40	36	48	40	41	40	41	45	39	44	39		40	42	35	39
V	37	37	40	39	32	40	44	39	33	38	33	44	33	45	44	38	36	26	37	38	40		33	28	36
W	52	56	53	56	51	51	47	50	64	58	60	47	58	46	51	55	52	62	56	35	42	33		58	49
X	53	52	48	50	55	49	39	48	58	51	60	37	56	41	47	51	47	60	50	31	35	28	58		48
Y	44	47	41	49	45	44	41	46	50	46	51	37	42	39	48	47	42	44	44	30	39	36	49	48	

Table 18
(cont.)

UPPER RIGHT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
A	47	53	50	48	50	47	45	52	45	54	47	48	48	46	41	46	50	40	37	48	38	48	49	35	42
B	41	43	44	48	54	45	41	49	45	50	43	48	42	44	38	40	42	37	37	46	29	46	49	34	44
C	44	42	49	41	49	42	42	50	44	47	46	49	45	41	41	45	43	41	46	41	39	47	46	41	36
D	43	45	52	50	52	53	39	51	51	50	55	48	50	46	44	52	48	43	49	48	40	48	49	37	43
E	42	44	47	49	53	48	32	43	42	49	46	47	41	41	39	47	41	34	44	47	37	37	46	33	46
F	44	48	51	51	51	42	42	51	42	51	46	47	45	49	46	45	48	31	48	55	37	47	50	33	40
G	40	48	47	43	41	44	38	48	44	45	44	41	45	51	47	47	50	47	37	49	47	49	46	31	36
H	48	51	50	50	50	49	43	52	43	50	47	52	48	46	49	50	46	34	51	48	46	46	53	36	44
I	52	53	56	56	64	49	41	54	47	56	51	58	48	46	43	48	46	37	47	60	36	44	53	31	50
J	43	50	46	54	52	49	44	50	45	52	45	52	46	51	49	46	46	40	45	54	38	52	54	35	45
K	45	53	50	60	58	53	43	52	45	58	49	56	46	50	46	48	44	37	47	56	34	46	55	31	54
L	38	38	47	37	45	36	42	48	40	39	40	39	39	45	49	43	43	44	50	39	39	43	46	45	34
M	43	45	50	52	60	47	43	48	41	52	43	50	46	42	40	46	42	33	45	50	34	46	49	35	43
N	39	43	42	38	44	37	43	45	39	42	45	44	43	40	42	40	42	42	47	44	42	39	51	42	35
O	40	48	45	47	45	48	42	44	52	47	46	45	47	51	51	49	45	40	48	47	43	47	56	41	43
P	46	48	51	53	53	50	38	56	48	49	54	51	49	43	46	51	49	35	48	49	37	47	50	39	40
Q	43	47	45	44	50	42	41	48	44	45	42	48	42	42	39	43	48	34	46	46	37	43	51	37	38
R	46	51	48	60	60	45	41	46	45	54	45	58	42	44	40	40	40	35	39	54	32	46	51	30	48
S	42	47	52	49	50	47	39	53	55	50	53	53	48	50	49	48	50	39	45	50	40	50	49	38	40
T	39	36	40	33	35	40	34	48	34	34	42	32	42	40	42	45	41	43	40	34	47	33	38	42	27
U	38	36	47	35	42	37	45	45	44	38	42	39	41	39	37	45	46	41	46	45	33	42	44	46	31
V	34	38	37	29	31	38	42	42	40	33	40	29	40	43	42	41	46	45	44	33	51	44	40	45	27
W	47	49	52	56	62	49	45	53	45	56	49	60	48	46	45	44	46	37	45	58	36	50	51	31	49
X	47	51	50	56	58	50	40	48	46	58	46	58	44	42	39	45	39	35	39	55	33	41	49	26	49
Y	39	42	43	46	47	47	37	48	47	49	47	44	43	47	40	48	43	36	42	46	34	43	50	28	45

Table 18
(cont.)

LOWER LEFT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
A	47	41	44	43	42	44	40	48	49	43	45	38	43	39	40	46	43	46	42	39	38	34	47	47	39
B	53	43	42	45	44	48	48	51	53	50	53	38	45	43	48	48	47	51	47	36	36	38	49	51	42
C	50	44	52	52	47	51	47	50	56	46	50	47	50	42	45	51	45	48	52	40	42	37	52	50	43
D	48	43	41	50	49	51	43	50	56	54	60	37	52	38	47	53	44	60	49	33	35	29	56	56	46
E	50	54	49	52	53	51	41	50	64	52	58	45	60	44	45	53	50	60	50	35	42	35	62	58	47
F	47	45	42	53	48	42	44	49	49	49	53	36	47	37	48	50	42	45	47	40	37	38	49	50	47
G	45	41	42	39	30	42	38	43	41	44	43	42	43	43	42	38	41	41	39	34	45	42	45	40	37
H	52	49	49	51	43	51	48	52	54	50	52	48	48	45	44	56	48	46	53	48	45	42	53	48	48
I	45	45	44	51	42	42	44	43	47	45	45	40	41	39	52	48	44	45	55	36	44	40	45	46	47
J	54	50	47	50	49	51	45	50	56	52	58	39	52	42	47	49	45	54	50	34	38	33	56	58	49
K	47	43	46	55	46	46	44	47	51	45	49	40	43	45	46	54	42	45	53	42	42	40	49	46	47
L	48	48	49	48	47	47	41	52	58	52	56	39	50	44	45	51	48	58	53	32	39	29	60	58	44
M	48	42	45	50	41	45	45	48	48	46	46	39	46	43	47	49	41	42	48	42	41	40	48	44	43
N	46	44	41	46	41	49	51	46	46	51	50	45	42	40	51	43	41	44	50	40	39	43	46	42	47
O	41	38	41	44	39	46	47	49	43	49	46	49	40	42	51	46	39	40	49	42	35	42	45	39	40
P	46	40	45	52	47	45	47	50	48	46	48	43	46	40	49	51	43	40	48	45	45	41	44	44	48
Q	50	42	43	48	41	48	50	46	46	46	44	43	42	42	45	49	48	40	50	41	46	46	46	39	43
R	40	37	41	43	34	32	47	35	37	40	37	44	33	42	40	36	33	35	39	43	41	45	37	35	36
S	35	37	46	49	44	48	52	51	47	45	47	51	45	47	48	48	46	39	45	40	46	44	45	39	42
T	48	46	41	48	47	55	49	48	60	54	56	39	50	44	47	49	46	54	50	34	33	33	58	55	46
U	38	30	39	40	37	37	47	46	36	38	34	39	34	42	43	37	37	32	40	47	45	51	36	33	34
V	48	46	47	48	37	47	49	46	44	52	46	43	46	39	47	47	43	46	50	35	42	44	50	41	43
W	49	49	46	49	46	50	46	53	53	58	55	46	49	51	56	50	51	51	49	37	44	40	51	49	50
X	36	34	41	34	33	33	39	36	28	35	30	45	35	42	41	39	37	30	38	42	46	45	32	26	29
Y	42	44	37	43	46	40	37	44	50	45	54	30	43	36	43	40	38	48	40	28	30	27	49	49	45

Table 18
(cont.)

LOWER RIGHT SECTION

Person	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
A		46	53	46	45	46	34	41	40	49	42	52	46	35	41	45	39	36	40	51	35	38	42	33	40
B	46		45	51	47	44	44	49	48	47	48	49	47	45	45	47	48	38	44	55	43	43	56	35	43
C	53	45		48	54	47	41	54	43	54	51	54	51	46	48	52	46	40	49	54	40	45	47	35	43
D	46	51	48		58	51	45	48	47	54	47	56	44	46	43	46	40	34	45	56	34	48	51	28	46
E	45	47	54	58		49	43	54	43	56	47	56	42	44	39	44	42	33	45	54	36	46	51	32	49
F	46	44	47	51	49		36	46	48	53	52	47	51	39	45	55	43	39	46	45	43	47	48	35	47
G	34	44	41	45	43	36		44	38	39	40	41	40	41	47	39	40	36	44	45	43	46	48	39	32
H	41	49	54	48	54	46	44		46	50	54	48	47	52	47	51	53	40	48	50	43	49	52	39	42
I	40	48	43	47	43	48	38	46		47	54	43	47	49	44	51	51	45	44	43	43	49	54	39	39
J	49	47	54	54	56	53	39	50	47		49	60	51	46	41	46	42	42	45	54	34	47	51	32	52
K	42	48	51	47	47	52	40	54	54	49		45	49	43	49	53	51	39	46	47	45	49	52	38	42
L	52	49	54	56	56	47	41	48	43	60	45		49	42	43	42	40	35	39	56	34	47	47	28	50
M	46	47	51	44	42	51	40	47	47	51	49	49		42	47	52	48	45	47	47	43	43	51	36	41
N	37	45	46	46	44	39	41	52	49	46	43	42	42		46	44	46	42	45	50	40	46	49	38	40
O	41	45	48	43	39	45	47	47	44	41	49	43	47	46		50	46	39	46	49	48	49	51	39	37
P	45	47	52	46	44	55	39	51	51	46	53	42	52	44	50		50	50	44	46	48	46	55	40	40
Q	39	48	46	40	42	43	40	53	51	42	51	40	48	46	46	50		38	46	44	45	50	51	40	39
R	36	38	40	34	33	39	36	40	45	41	39	35	45	42	39	44	38		43	37	46	38	42	43	31
S	40	44	49	45	45	46	44	48	44	45	46	39	47	45	46	51	46	43		45	47	45	50	37	37
T	51	55	54	56	54	45	45	50	43	54	47	56	47	50	49	46	44	37	45		38	43	53	32	48
U	35	43	40	34	36	43	43	43	43	34	45	34	43	40	48	48	45	46	47	38		41	43	42	32
V	38	43	45	48	46	47	46	49	49	47	49	45	43	46	49	46	50	38	45	43	41		49	42	37
W	42	56	47	51	51	48	48	52	54	51	52	47	51	49	51	55	51	42	50	53	43	49		39	45
X	29	29	34	28	32	35	39	39	39	32	37	28	34	38	39	40	40	43	37	24	42	42	39		23
Y	40	43	43	46	49	47	32	42	39	52	42	50	41	40	37	40	39	30	37	48	32	37	45	26	

Figure 3

MBT Experienced Leaders With

Inexperienced Leaders Attached; Cluster One

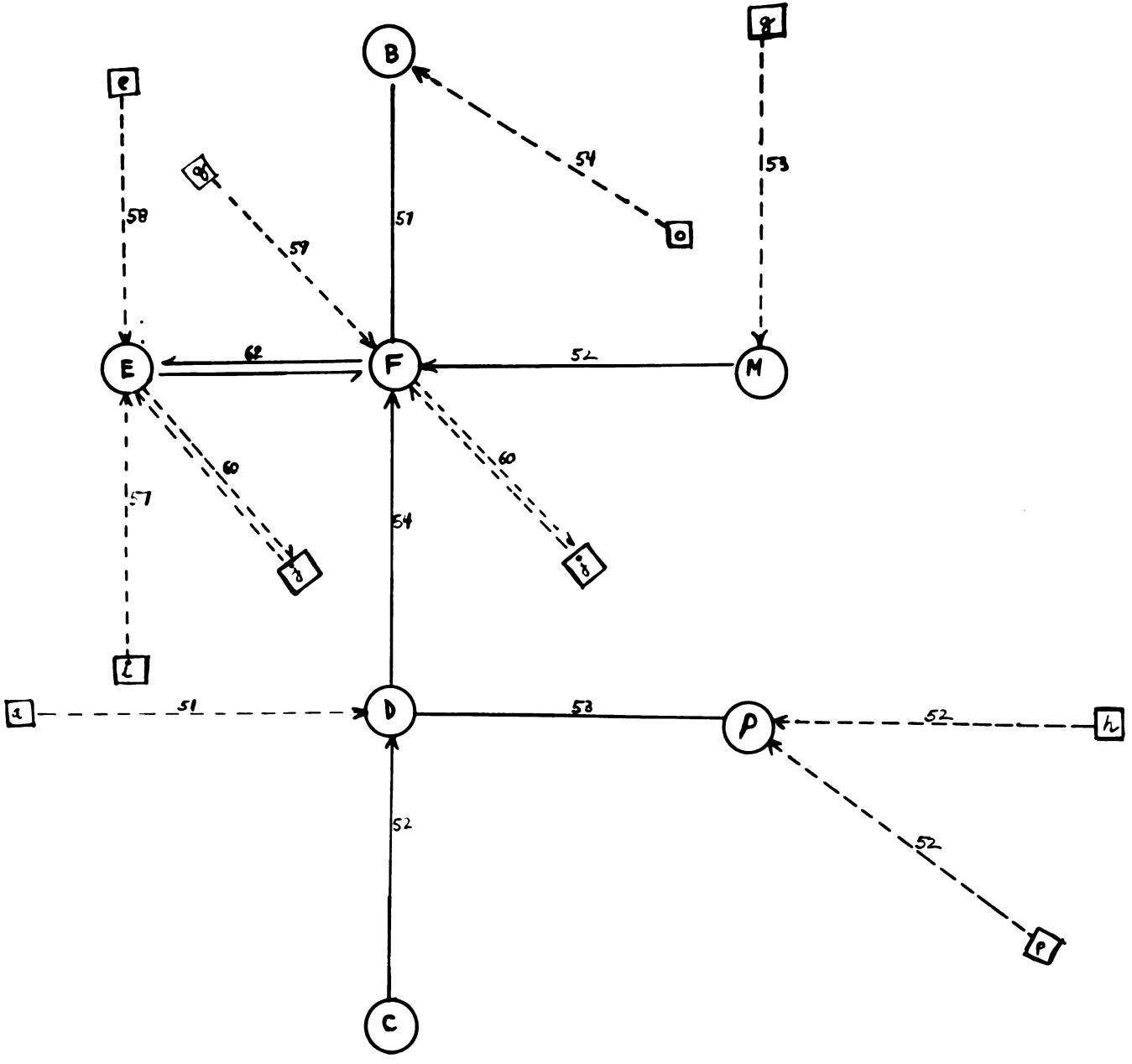
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Figure 4

NDT Experienced Leaders With

Inexperienced Leaders Attached; Clusters Two and Three

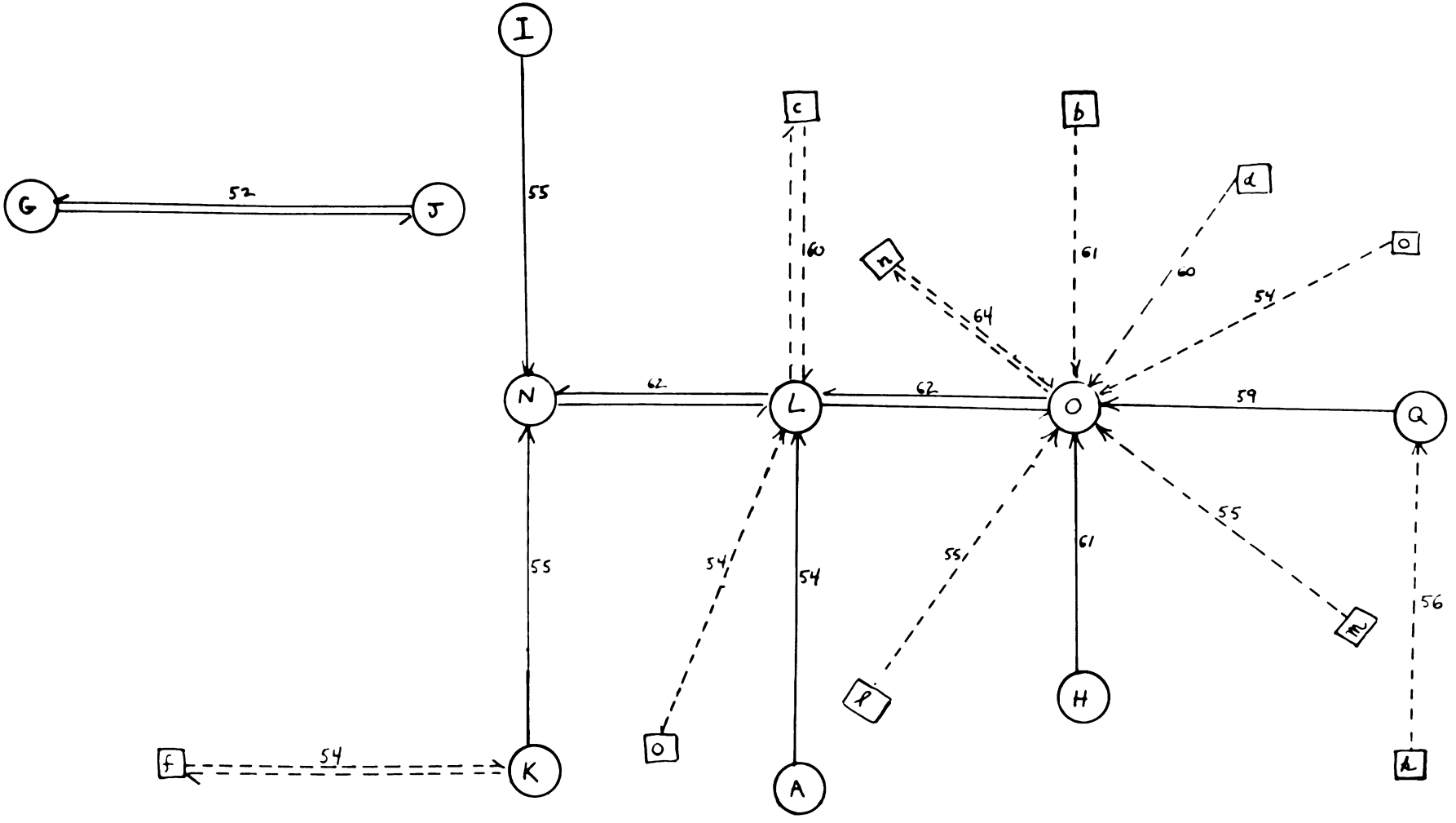
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Figure 5

MBT Inexperienced Leaders With

Experienced Leaders Attached; Cluster One

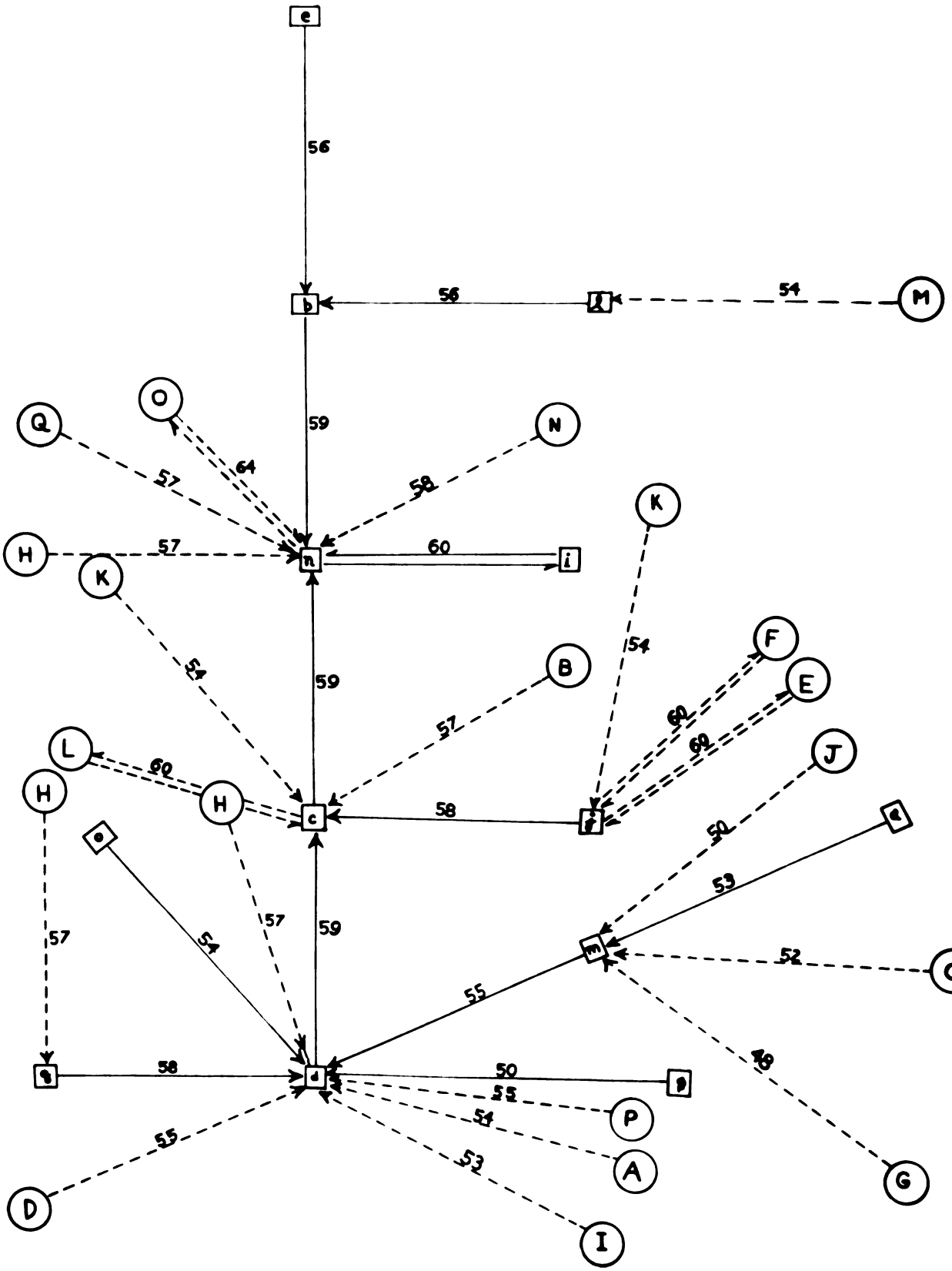
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Figure 6

MBT Inexperienced Leaders With

Experienced Leaders Attached; Clusters Two and Three

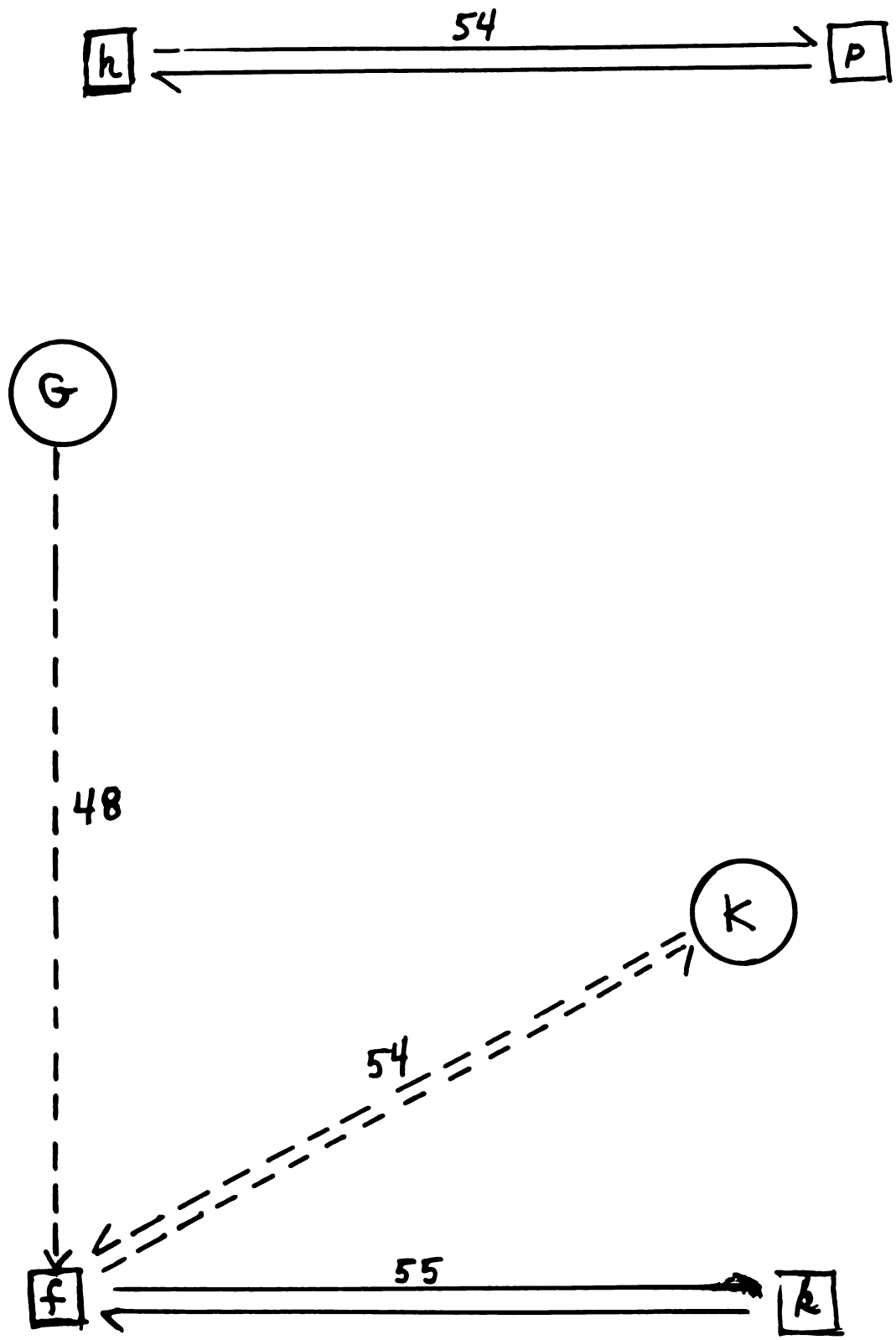
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Figure 7

CSR Experienced Leaders With

Inexperienced Leaders Attached; Cluster One

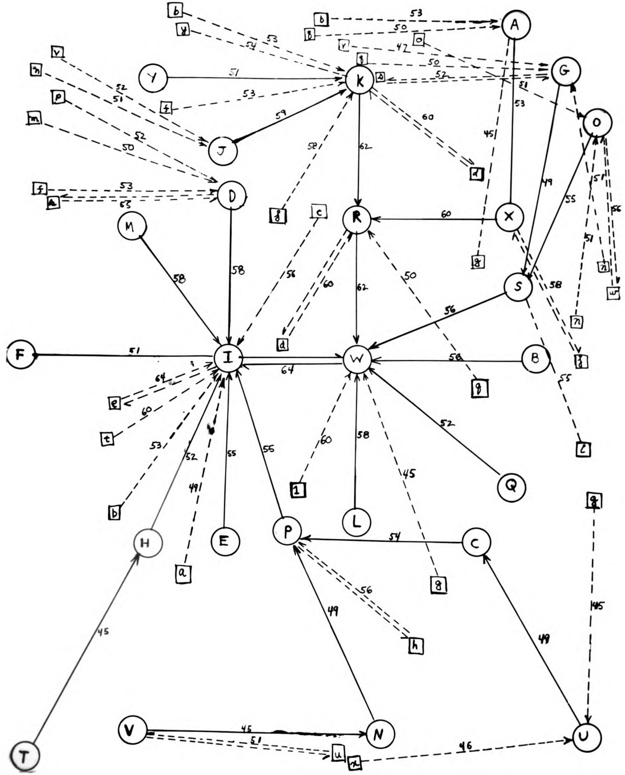

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Figure 8

CSR Inexperienced Leaders With

Experienced Leaders Attached; Cluster One

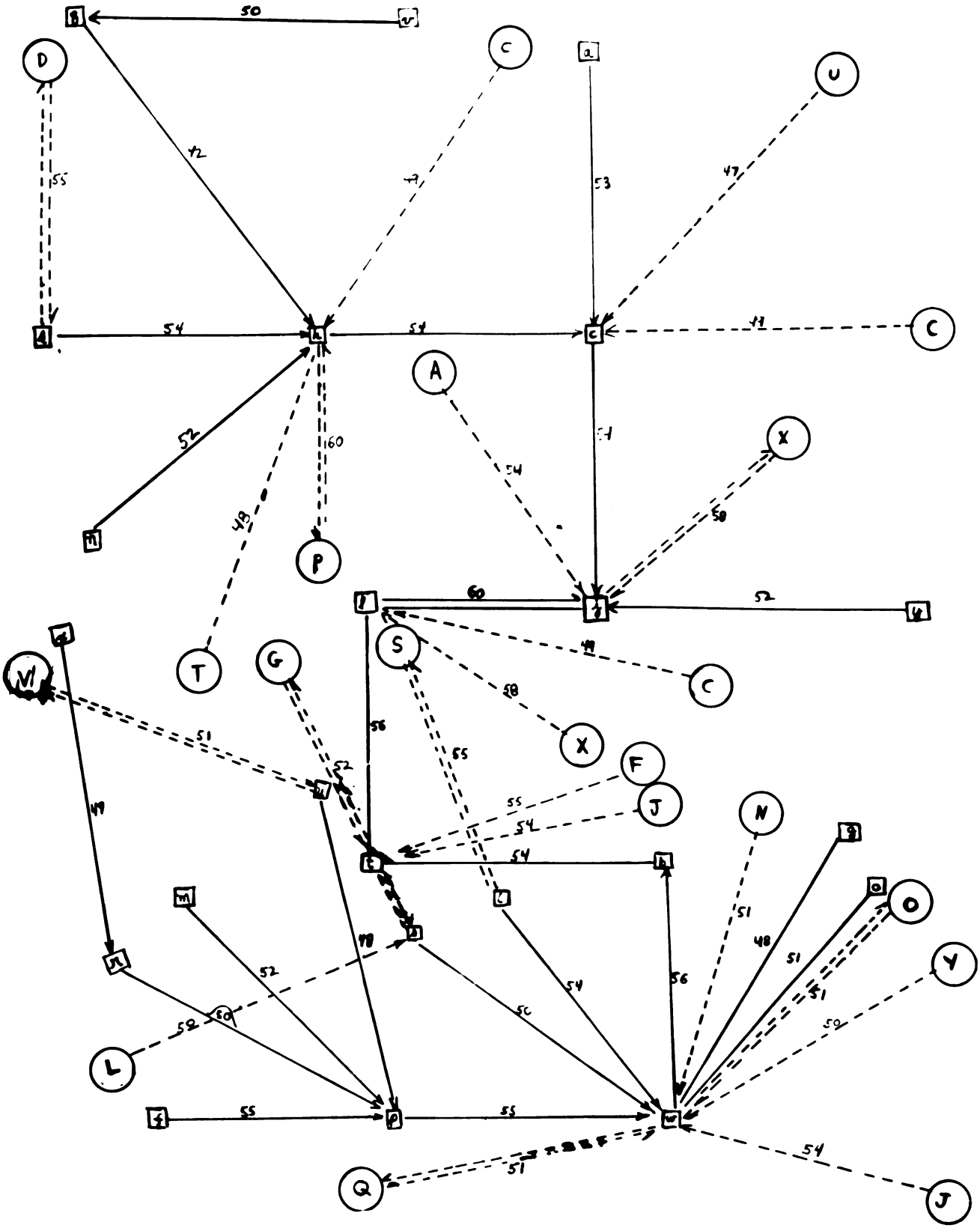
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Figure 9

CSR Inexperienced Leaders With

Experienced Leaders attached; Cluster Two

indirect associates. Only one set of ties was found. The Experienced Leader pair, V and N, shown in Figure 7, has three indirect associates, P, C, and I. All three persons, P, C, and I produced a negative differentiation of 3.5 according to the formula applied. Person u, the Inexperienced Leader scoring highest with V, was then scored on scales comprised of persons VNP, VNC, and VNI. Person u scored lowest on scale VNI. Scale VNI was therefore chosen for inclusion in the investigation of cross-validity. The 22 scales, including VNI, are listed in Table 22.

Cross-validation results for the scales established with the Differential Linkage Analysis procedure applied to isolate few subclusters are shown in Table 23. The chi square for group MBT is 0.762; for group CSR, 2.613. When the cell frequencies for groups MBT and CSR were combined, the chi square found was 3.282. None of these chi squares is significant at the .05 level or better.

Cross-validation results for the scales obtained with the DLA procedure applied to obtain many subclusters are shown in Table 24. The chi square found for group MBT was 1.317; for group CSR, 3.312. When the cell frequencies for groups MBT and CSR were combined, the chi square obtained was 4.530. This chi square is significant between the .05 and .01 levels.

Differential Linkage Analysis cross-validation results obtained by utilising across group criterion Z scores are shown in Table 25. Both the DLA procedure applied to develop few subclusters and the procedure applied to isolate many subclusters failed to yield a chi square significant at or better than the .05 level.

Table 19

Experienced and Inexperienced Leadership Scales Obtained With ILA Procedure Applied to Isolate Few Subclusters (Group MBT)

Experienced Leader Scales		Inexperienced Leader Scales	
Members in Scale	Number of Items In Scale	Members in Scale	Number of Items In Scale
EFD	33	amd	29
OQHL	30	ehlmd	27
DPC	30	qdeij	17
IHLAK	23		
4 scales	30.5*	3 scales	27*

* Median number of items in scales of corresponding category (Experienced or Inexperienced Leaders).

Table 20

Experienced and Inexperienced Leadership Scales Obtained With ILA Procedure Applied to Isolate Few Subclusters (Group CSR)

Experienced Leader Scales		Inexperienced Leader Scales	
Members in Scale	Number of Items In Scale	Members in Scale	Number of Items In Scale
JKRXA	33	ijto	29
WOBS	28	pfm	29
IWMDRSBP	21	qvlh	25
		wisp	22
3 scales	28*	4 scales	27*

* Median number of items in scales of corresponding category (Experienced or Inexperienced Leaders).

Table 21

Experienced and Inexperienced Leadership Scales Obtained With ILA Procedure Applied to Isolate Many Subclusters (Group MBT)

Experienced Leader Scales		Inexperienced Leader Scales	
Members in Scale	Number of Items in Scale	Members in Scale	Number of Items in Scale
BEF	40	lbe	35
FBEIM	21	nbcd	31
DPC	30	jend	31
DEF	35	enj	36
EFM	33	dnogqs	14
DFP	33	gqd	28
KHL	37	amd	32
LNAO	34		
OLHQ	35		
9 scales	34*	7 scales	31*

* Median number of items in scales of corresponding category (Experienced or Inexperienced Leaders).

Table 22

Experienced and Inexperienced Leadership Scales Obtained With ILA Procedure Applied to Isolate Many Subclusters (Group CSR)

Experienced Leader Scales		Inexperienced Leader Scales	
Members in Scale	Number of Items in Scale	Members in Scale	Number of Items in Scale
RAX	44	hrk	37
KLJR	38	ekmq	26
RJK	51	eshj	29
OSW	39	elyj	37
WOS	41	tlj	48
RKXW	48	btl	43
DHW	52	wpsibgo	14
IDMFHEDW	23	swi	36
WRILQBS	22	uvr	32
PIMC	32		
UCH	31		
UNI	27		
KAX	46		
13 scales	39*	9 scales	36*

* Median number of items in scales of corresponding category (Experienced or Inexperienced Leaders).

Table 23

Cross Validity of DLA Procedure Applied to Isolate Few Subclusters

Group MBT (N = 63)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	16	15	31	
	IL	20	12	32	
		36	27	63	$\chi^2 = 0.762$ (NS)

Group CSR (N = 98)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	21	28	49	
	IL	29	20	49	
		50	48	98	$\chi^2 = 2.613$ (NS)

Cell Frequencies For Groups MBT-CSR Combined (N = 161)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	37	43	80	
	IL	49	32	81	
		86	75	161	$\chi^2 = 3.282$ (NS)

Note: Rows refer to Experienced and Inexperienced Leaders (criterion). Columns refer to number of people in corresponding Inexperienced or Experienced Leader Category who score highest on Inexperienced and Experienced scales respectively (Predictor).

Table 24

Cross Validity of ILA Procedure Applied to Isolate Many Subclusters

Group MBT (N = 63)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	12	19	31	
	IL	17	15	32	
		29	34	63	$X^2 = 1.317$ (NS)

Group CSR (N = 98)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	21	28	49	
	IL	30	19	49	
		51	47	98	$X^2 = 3.312$ (NS)

Cell Frequencies For Groups MBT-CSR Combined (N = 161)

		Predictor: IL Scale	Predictor: EL Scale		
Criterion	EL	33	47	80	
	IL	47	34	81	
		80	81	161	$X^2 = 4.530$ ($p < .05$)

Note: Rows refer to Experienced and Inexperienced Leaders (criterion). Columns refer to number of people in corresponding Inexperienced or Experienced Leader category who score highest on Inexperienced and Experienced Leader scales respectively (Predictor).

Table 25

ILA Cross-Validity Using Across Group Criterion
Z Scores for Groups MBT and CCR

I: Many Subclusters

		Predictor		
		IL	EL	
Criterion	EL	38	42	
	IL	41	40	161

$\chi^2 = 0.157$ (NS)

II: Few Subclusters

		Predictor		
		IL	EL	
Criterion	EL	37	43	
	IL	46	35	161

$\chi^2 = 1.790$ (NS)

Note: Rows refer to Experienced and Inexperienced Leaders (criterion). Columns refer to number of people in corresponding Inexperienced or Experienced Leader category who score highest on Inexperienced and Experienced Leader scales respectively (Predictor).

The product-moment correlation coefficient between configural criterion scores and per cent agreement with the scale (Experienced or Inexperienced Leader Scales) upon which each person scored highest was .021 for group MBT. The scale applied to isolate few subclusters was used in this analysis. Using the procedure applied to isolate many subclusters the correlation between criterion score and per cent agreement with the scale upon which each person scored highest was .013. For group CSR the correlation between configural criterion scores and per cent agreement with the scale upon which each person scored highest (using the procedure applied to isolate few subclusters) was .120. The correlation coefficient found between the same variables for group CSR, but using the procedure for many subclusters was .084. None of these four correlation coefficients reach the five per cent level of significance.

Comparison Between Configural and Item Analyses

To facilitate a direct comparison of item and configural analyses, the cross-validation results obtained with linear analysis for the configural criterion were expressed in terms of chi square. These relationships are shown in Table 26. The chi square expressing the relationship between the criterion and predictor for group MBT is 2.045; for group CSR the obtained chi square was 1.547. When the cell frequencies for groups MBT and CSR were combined, the chi square found was 2.897. These three chi squares all fail to reach the five per cent level of significance or better.

It will be recalled that the more appropriate chi square test for linear analysis was considered to be a procedure which utilized across group criterion Z scores. The scoring key utilized here consisted of 19 items which showed a cross-validity relationship of .167 to the configural criterion for group MBT-CSR combined. The chi square defining the relationship between the predictor and criterion is 10.525 ($p < .01$), as shown in Table 27.

Table 28 shows the comparisons between the results obtained with the two differential linkage analyses and linear analysis. Two of the twelve chi squares reported are significant at the .05 level or better. The item analytic procedure which utilized across group criterion Z scores (group MBT-CSR combined) yielded a chi square of 10.525 ($p < .01$). The HLA procedure applied to isolate many subclusters, which utilized within group criterion Z scores (cell frequencies for groups MBT and CSR combined) yielded a chi square of 4.530 ($p < .05 > .01$).

The largest cross-validity coefficient found for the HLA procedure was .120 (group CSR—few subclusters); the largest cross-validity coefficient found for linear analysis was .428 (group CSR—seven items). The difference between these correlation coefficients is significant at the .02 level ($p = .0188$).

Trait Versus Situational Analysis

An analysis of the number of items representing the trait theory, versus the number of items representing the situational theory of leadership was made for all linear scoring keys which showed significant cross-validity. (It will be recalled that the Self-Situational Inventory

Table 26

Cross Validity of Item Analysis with Configural Criterion Expressed in Terms of Chi Square

Group MBT (N = 63)

		Predictor: Below Median	Predictor: Above Median		
Criterion	EL	10	21	31	
	IL	16	16	32	
		26	37	63	$\chi^2 = 2.045$ (NS)

Group CSR (N = 98)

		Predictor: Below Median	Predictor: Above Median		
Criterion	EL	17	32	49	
	IL	22	27	49	
		39	59	98	$\chi^2 = 1.547$ (NS)

Cell Frequencies for Groups MBT-CSR Combined (N = 161)

		Predictor: Below Median	Predictor: Above Median		
Criterion	EL	27	53	80	
	IL	38	43	81	
		65	96	161	$\chi^2 = 2.897$ (NS)

Note: Above and Below Median refer to scores on seven item predictor scoring key showing highest cross-validity (r = .428). EL and IL refer to Experienced Leaders and Inexperienced respectively. EL and IL designations are based upon top and bottom 30% configural criterion scores.

Table 27

Cross-Validity of Item Analysis with Across Group Configural Criterion Z Scores (Group MBT-CSR)

		Predictor	
		Below Median	Above Median
Criterion	EL	27	53
	IL	48	33

161

$\chi^2 = 10.525$ ($p < .01$)

Note: Above and Below Median refer to scores on 19 item predictor scoring key developed for group MBT-CSR combined. This scoring key showed a cross-validity of .167 (p .05).

EL and IL refer to Experienced Leaders and Inexperienced respectively. EL and IL designations are based upon top and bottom 30% configural criterion scores.

- -

Table 28

Comparison of Item Analysis, ILA with Few Subclusters, and ILA with Many Subclusters, in Terms of Chi Square

Group	Item Analysis	ILA-Few Subclusters	ILA-Many Subclusters
MBT	2.045	0.762	1.317
CSR	1.547	2.613	3.312
MBT-CSR[1]	3.897	3.282	4.530*
MBT-CSR[2]	10.525**	1.790	0.157

* Significant at the .05 level.
** Significant at less than the .01 level.

[1] This analysis was performed using within groups criterion Z scores.

[2] This analysis was performed using across group criterion Z scores.

consists of 36 situational items and 34 trait items.) No item was counted more than once for each set of scoring keys in the trait versus situational analysis. Eighty-four items entered into this analysis, as shown in Table 29. Forty-six of these 84 items represent the trait theory of leadership and 38 the situational theory. This difference does not reach the .05 level of significance or better; the chi square obtained expressing this relationship is 1.190.

The validity generalization sample of 71 females was chosen to determine the relative value of scoring keys containing trait items versus those containing only situational items. This group was chosen because (a) The validity generalization coefficient of .452 was the highest validity obtained in this study, and (b) 21 items entered into this scoring key, allowing for a somewhat dependable comparison of the relative value of trait versus situational items. These 21 items consisted of 12 situational and nine trait items. Three situational items which were significant between the .05 and .10 levels of significance in the experimental sample with group CSR were discarded. In this manner nine trait items were compared to nine situational items. As shown in Table 30 neither the trait nor situational scoring keys showed a significant relationship to the criterion. The validity of the trait items was .028; the validity of the situational items was .010. The difference between these two validity coefficients is not significant. The trait and situational scoring keys also failed to show a significant difference in reliability (.135 versus .401 respectively.)

Table 29

Trait Versus Situational Analysis of SSI Scoring Keys With Significant Cross-Validity

Group	Criterion	Validity	S.B. Reliability	Significance levels of items	No. Items	No. T Items	No. S Items
MBT	Configural	.332**	.542	.01, .05	8	6	2
CRS	Configural	.199*	.458	.01,.05,.10	21	9	12
MBT-CSR	Configural	.167*	.750	.01,.05,.10	19	11	8
MBT	Combined	.318*	.375	.01,.05,.10	9	7	2
CRS	Combined	.317**	.347	.01,.05	8	4	4
MBT-CSR	Combined	.232**	.248	.01,.05,.10	19	9	10
					84	46	38

** Significant at .01 level.
* Significant at .05 level.

Table 30

Trait Versus Situational Subtests in Validity Generalization Sample

Test	Items	Reliability (S.B. corrected)	Validity
Trait	9	.135	.028
Situational	9	.401	.010

Interrelationships Among Variables

Interrelationships among age, number of people supervised, education, Adaptability Test score, and configural-item analytic criterion scores are shown in Table 31. It will be recalled that predictor scores were not included in this analysis because no one predictor scoring key was applied to the entire sample of 394 persons. Six of these interrelationships are significant at the one per cent level; age and education (= .231); age and Adaptability Test score (= .252); number of people supervised and criterion score (.333); education and criterion score (.307); Adaptability Test score and criterion score (.133) education and Adaptability Test score (.451). The correlation between age and number of people supervised is .100, significant at the five per cent level. No other interrelationships were found to be significant at the five per cent level or better.

Construction of Verbal Description

Seven items which showed a cross-validity of .428 and a validity generalization of .327 were used in the formulation of two hypotheses about the Self and Situational reports of experienced leaders versus less experienced leaders.

Experienced leaders, in contrast to less experienced leaders, felt the following statements applied to them to a greater extent:

1. The members of my group think I can get them what they want.
5. If the members of my group took a poll, I would be voted the leader.
30. I am successful in maintaining "esprit de corps" among the members of my group.

Table 31

Interrelationships Among Age, Number of People Supervised, Education, Adaptability Score, and Combined Criterion Scores: (N = 366)

	Age	N	Educ.	Adt.	Criterion
Age	-	.100*	-.231**	-.252**	-.029
N		-	.021	-.066	.388**
Educ.			-	.451**	.307**
Adt.				-	.188**
BII					-

** Significant at .01 level.
* Significant at .05 level.

Experienced leaders, in contrast to less experienced leaders, felt the following statements applied to them to a lesser extent:

9. My authority comes from people under me.

39. I try to keep things as they are.

44. I always get the job done.

58. I'm pretty well able to size up my own assets and liabilities.

On the basis of an inspection of the content of the above Self-Situational Inventory statements, the following hypotheses about the differential self and situational reports of experienced and less experienced leaders in our sample are made:

(a) Experienced leaders in contrast to less experienced leaders have more confidence about the adequacy of their relationships with their groups. This hypothesis is made on the basis of SSI item, 1, 5, and 50.

(b) Experienced leaders, in contrast to less experienced leaders, are less confident about (or perhaps are more "realistic" about) certain of their personal characteristics. This hypothesis is made on the basis of SSI items 44 and 58. It is also supported by item number 60 ("I work hard all the time.") which showed a significant relationship to the criterion in all nine item analyses in the experimental sample, and was included in scoring keys which showed both significant cross-validity and validity generalization. As will be recalled, the answer in the experienced leader direction for item number 60 is any response but "Always."

CHAPTER IV

DISCUSSION

The item analytically developed predictor yielded a higher relationship with the configurally derived criterion than with the item analytically derived criterion. It was therefore reasoned that an appropriate test of Differential Linkage Analysis (the method of configural analysis utilized here) for building a configural prediction would be to compare results from it with our item analytic predictor. To facilitate this comparison the cross validation results of linear and configural analyses were expressed in terms of both chi square and product moment correlation coefficients.

When the configural criterion was made dichotomous, and groups MBT and CSR were considered separately neither DLA nor linear analysis manifested a significant chi square. When chi square estimates were obtained on a larger number of cases (groups MBT and CSR combined) both DLA and linear analysis yielded one significant and one nonsignificant chi square.

To obtain an estimate based upon a larger number of cases two procedures were carried out for both linear and configural analyses: (a) Chi square cell frequencies obtained separately for groups MBT and CSR were combined. The criterion Z scores used in this analysis were computed within groups MBT and CSR, thereby retaining within group relationships. (b) Across group MBT-CSR criterion Z scores were utilized to assign persons to positions above or below the median.

Differential Linkage Analysis yielded a chi square of 4.530, ($p < .05 > .01$) when the procedure which retained within group comparisons was utilised. The DLA procedure utilising across group criterion Z scores failed to yield a significant chi square. It will be recalled that DLA was conducted with groups MBT and CSR separately and therefore a statistical procedure which utilised within group comparisons can be considered the more appropriate procedure.

The linear analysis procedure which utilised across group criterion Z scores yielded a chi square of 10.525 (p .01). The procedure which utilised within group comparisons failed to yield a significant chi square. It will be recalled that item analyses were conducted with groups MBT-CSR combined; therefore a chi square based on a larger number of cases which utilised across group criterion Z scores was considered the more appropriate procedure.

When configural criterion scores were made continuous, linear analysis yielded cross-validity coefficients significant at better than the .01 level, for both groups MBT and CSR, while configural analysis failed to yield significant cross-validity. The highest linear analysis cross-validity coefficient (.428) was significantly greater than the highest configural analysis cross-validity coefficient (.120). These results could possibly have been due to the particular method of converting configural results into linear.

In discussing the relative merits of configural and linear analysis, three factors must be recognised: (a) A chi square estimate based on a larger number of cases which utilised within group comparisons was

considered the more appropriate method of expressing ILA cross-validity. (b) The chi square estimate based on a larger number of cases which utilized across group comparisons was considered the more appropriate method of expressing linear analysis cross-validity. (c) Product moment correlation coefficients were considered the most appropriate method of expressing linear analysis cross-validity. Our results indicated that when the most appropriate methods were utilized for both linear and configural analyses, significant results were obtained. Linear analysis manifested significant cross validity when its results were expressed in product moment correlation coefficients and when across group comparisons were retained in the chi square estimate of cross-validity. Configural analysis manifested significant cross-validity when the chi square estimate of cross validity was based upon within group comparisons. However, it must be cautioned that the most appropriate statistic and procedure for configural or linear analysis must be determined by the characteristics of each experimental design in which they are utilized.

The method of Differential Linkage Analysis applied to isolate many subclusters manifested significant cross-validity, while the method of ILA applied to isolate few subclusters did not. This finding is consistent with the suggestion by Schiller (1959) that a method of configural analysis which yielded many types (or "subclusters") might be of positive value. Since significance was obtained with relatively many subclusters and not with few, it is likely that an increase in the number of subjects should increase validity because the dependability

of the types should also be increased. An appropriate application of this suggestion in our study would have been to conduct ILA on group MBT-CSR combined. However, before ILA can be applied to larger samples, it would appear necessary to develop electronic computer programs for ILA. At present ILA involves relatively many time consuming paper and pencil procedures.

The criterion measure used in this investigation was evaluated and scored in three ways: (a) Configurally, (b) item analytically, and (c) by an average of the configural and item analytic scores. Our results indicated that we were better able to predict the configural than the item analytic criterion. In order to make a more definitive statement of the relative value of a criterion based upon configural assessments versus a criterion based upon item analytic assessments, it might be necessary to use an equal number of judges in the construction of both. It will be recalled that nine judges were utilized in the development of the configural criterion scores, and only one judge (this author) was utilized in the development of item analytic criterion scores. The relative superiority of the configural over the item analytic criterion may have been a function of the number of judges employed in their development rather than the superiority of the configural method of making criterion assessments. However, it must still be recognized that the item analytic criterion had an objective component not possessed by the configural. It is possible that this objective component has less relevance for evaluating leadership experiences than the configural method utilized here.

One rationale given here for studying leadership in terms both self and situational was that by doing so both the trait and situational theories of leadership would be taken into consideration. The positive support found for our two hypotheses, relating to the differential self and situational reports of experienced and inexperienced leaders suggests that this approach has value.

Another issue raised in this investigation was to determine which theory of leadership, the trait or situational, made a larger contribution to the validity of our predictor. One procedure which attempted to answer this question demonstrated that these theories of leadership contributed a nonsignificantly different number of valid items. Another procedure attempting to answer the same question utilized two scoring keys, one containing only trait items, and one containing only situational items. These two scoring keys were applied to the validity generalization sample. Neither scoring key yielded a significant relationship to the criterion and the reliabilities of these keys were nonsignificantly different. Although it may be concluded that both the trait and situational theories are useful in contributing items to leadership assessment, we were unable to determine which theory made the largest contribution to the validity of the predictor. This question might be better answered by using trait and situational scoring keys containing a larger number of items than used here. The trait and situational scoring keys applied to the validity generalization sample contained only nine items each.

On the basis of results found in this investigation, certain suggestions for further research can be made.

1. Differential Linkage Analysis was attempted with cross-validation samples of 63, and 98 subjects. According to McQuitty (1958) larger samples than these are required to fully develop the predictive potentials of pattern analytic techniques. In order to facilitate the extension of DLA to research with larger samples, it would appear necessary to develop electronic computer programs for DLA, as discussed earlier.

2. In this investigation DLA was used solely to predict a configurally scored criterion. It is theoretically possible that although item analysis was unsuccessful in predicting the item analytic criterion, configural analysis might be useful in predicting an item analytically scored criterion. Such a possibility is considered worthy of future research.

3. Only the concurrent validity of the Self-Situational Inventory, developed for this investigation, was assessed. An applied study might be profitably carried out which would attempt to assess the predictive validity of the Self-Situational Inventory. To determine the possible adequacy of the SSI as a selection device it would also be necessary to predict criteria other than biographical indices of leadership.

4. Two hypotheses about the differential self and situational reports of experienced and less experienced leaders were formulated on the basis of the content of a discriminating group of eight SSI items:

(a) Experienced leaders in contrast to less experienced leaders have more confidence about the adequacy of their relationships with their groups. (b) Experienced leaders in contrast to less experienced leaders are less confident about certain of their personal characteristics. These hypotheses might profitably be investigated.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to develop an inventory based upon the trait and situational approaches to leadership and to compare their relative contribution to validity. The relative efficacy of linear and configural methods were compared in developing both the inventory and criterion of leadership. Two instruments were developed; a Self-Situational Inventory (SSI) and a Biographical Information Inventory (BII).

The SSI consists of 70 items; 36 "situational," and 34 "trait." The BII surveys a respondent's leadership roles and experiences. The predictor, the criterion, and an intelligence test were administered to 394 supervisors: group MBT--126 male telephone personnel; group CSR--178 civil service personnel along with 19 electric motor company personnel; group F--68 civil service and three telephone company female personnel. The criterion was scored in three ways: (a) configurally--overall qualitative evaluations by nine judges; (b) item analytically--objective evaluations by the investigator; and (c) an average of (a) and (b). Nine sets of scoring keys, developed on the basis of predictor-criterion relationships found in the experimental sample, were utilized in cross-validation.

Thirteen out of 27 cross-validity coefficients were significant at or beyond the .05 level. These coefficients ranged from -.016 to .428 with a median of .199. The configurally scored criterion yielded one significantly better result than did the item-analytically scored criterion. The scoring key with the highest cross-validity coefficient

was applied to group F (the validity generalization sample), yielding a validity of .452 which did not significantly attenuate when intelligence was partialled out. Scoring keys which cross-validated were composed of a non-significantly different number of trait and situational items. The scoring key applied to the validity generalization sample was divided into an equal number of trait and situational items. Neither the trait nor situational items considered separately showed a significant relationship to the criterion.

A configural analysis procedure applied to isolate many subclusters yielded nine Experienced Leader and seven Inexperienced Leader scales for group MBT, and thirteen Experienced and nine Inexperienced Leader scales for group CSR. When the cell frequencies for groups MBT and CSR were combined in the cross-validational sample (thus retaining within group comparisons utilized in configural analysis) the chi square obtained was 4.530 ($p < .05$). On the other hand, the configural analysis procedure applied to isolate few subclusters failed to manifest significant cross-validity.

Linear analysis expressed in terms of chi square for the cross-validational sample showed significant results only when across group MBT-CSR criterion Z scores were utilized ($\chi^2 = 10.53$). Configural analysis expressed in terms of product-moment correlations did not manifest significant cross validity. Although linear analysis more frequently yielded significant cross-validity than did configural analysis, its relative superiority over configural analysis could not be demonstrated; both methods yielded significant cross-validity when their results were expressed in terms of the most appropriate statistical procedure.

On the basis of these results it is concluded that: (a) Self and situational reports of experienced leaders are both configurally and dimensionally different from those of inexperienced leaders. (b) Both the trait and situational theories of leadership are useful in the construction of items for leadership assessment.

An hypothesis was formulated that experienced leaders in contrast to less experienced leaders report more confidence about the adequacy of their relationships with their groups and report less confidence about some of their personal characteristics.

CHAPTER VI

BIBLIOGRAPHY

1. Argyris, C. Some characteristics of successful executives. Personnel J., 1953, 32, 50-55.

2. Alexandra, Sister Mary. Personality adjustment and leadership. Education, 1946, 66, 584-590.

3. Bash, C. A. Leadership. United States Naval Inst. Proc., 1918, 44, 1819-1827. (Abstract)

4. Bass, B. M., and Norton, F. M. Group size and leaderless discussion. J. appl. Psychol., 1951, 35, 397-400.

5. Bass, B. M., and Wurster, C. R. Effects of company rank on LGD performance of oil refinery supervisors. J. appl. Psychol., 1953, 37, 100-104.

6. Bass, B. M., et al. Situational and personality factors in leadership among sorority women. Psychol. Monogr., 1953, 67, No. 16 (Whole No. 366).

7. Bass, B. M. The leaderless group discussion as a leadership evaluation instrument. Personnel Psychol., 1954, 7, 470-477.

8. Bowden, A. C. A study of the personality of student leaders in colleges in the United States. J. abnorm. soc. Psychol., 1926, 21, 140-160.

9. Browne, C. G. Study of executive leadership in business: I. Social group patterns. J. appl. Psychol., 1950, 34, 12-15.

10. Brownfain, J. J. Stability of self-concept as a dimension of personality. J. abnorm. soc. Psychol., 1952, 47, 597-606.

11. Campbell, D. T. Leadership and its effect upon the group. Ohio State Univ. Bur. Bus. Res., Res. Monogr., No. 83, 1956.

12. Cantoni, L. J. Men, emotion and jobs. Sch. and Soc., 1955, 81, 40-41.

13. Carter, L. F., and Nixon, Mary. An investigation of the relationship between four criteria of leadership ability for three different tasks. J. Psychol., 1949, 27, 245-261

CHAPTER VI

BIBLIOGRAPHY

1. Argyris, C. Some characteristics of successful executives. Personnel J., 1953, 32, 50-55.

2. Alexandra, Sister Mary. Personality adjustment and leadership. Education, 1946, 66, 584-590.

3. Bach, C. A. Leadership. United States Naval Inst. Proc., 1918, 44, 1819-1827. (Abstract)

4. Bass, B. M., and Norton, F. M. Group size and leaderless discussion. J. appl., Psychol., 1951, 35, 397-400.

5. Bass, B. M., and Wurster, C. R. Effects of company rank on LGD performance of oil refinery supervisors. J. appl. Psychol., 1953, 37, 100-104.

6. Bass, B. M., et al. Situational and personality factors in leadership among sorority women. Psychol. Monogr., 1953, 67, No. 16 (Whole No. 366).

7. Bass, B. M. The leaderless group discussion as a leadership evaluation instrument. Personnel Psychol., 1954, 7, 470-477.

8. Bowden, A. C. A study of the personality of student leaders in colleges in the United States. J. abnorm. soc. Psychol., 1926, 21, 140-160.

9. Browne, C. G. Study of executive leadership in business: I. Social group patterns. J. appl. Psychol., 1950, 34, 12-15.

10. Brownfain, J. J. Stability of self-concept as a dimension of personality. J. abnorm. soc. Psychol., 1952, 47, 597-606.

11. Campbell, D. T. Leadership and its effect upon the group. Ohio State Univ. Bur. Bus. Res., Res. Monogr., No. 83, 1956.

12. Cantoni, L. J. Men, emotion and jobs. Sch. and Soc., 1955, 81, 40-41.

13. Carter, L. F., and Nixon, Mary. An investigation of the relationship between four criteria of leadership ability for three different tasks. J. Psychol., 1949, 27, 245-261

14. Carter, L., Haythorn, W., and Howell, Margaret. A further investigation of the criteria of leadership. J. abnorm. soc. Psychol., 1950, 45, 350-358.

15. Cartwright, D., and Zander, A. (Eds.) Group Dynamics. Evanston, Illinois: Row Peterson and Company, 1953.

16. Courtenay, M. E. Persistence of leadership. Sch. Rev., 1948, 46, 97-107.

17. Cowley, W. H. Three distinctions in the study of leaders. J. abnorm. soc. Psychol., 1928, 23, 144-157.

18. Drake, R. M. A study of leadership. Charact. and Pers., 1944, 12, 285-289.

19. DuBrin, A. J. A leadership inventory of self concepts. Paper presented at the 64th annual meeting of the Michigan Academy of Science, Arts, and Letters, Ann Arbor, Michigan, 1960.

20. Edwards, A. E. Techniques of attitude scale construction. New York: Appleton-Century Crofts, Inc., 1957.

21. Fox, H., Scott, D. W., Kirchner, W. K., and Mahoney, T. A. Leadership and executive development: A bibliography. Minneapolis: University of Minnesota Press, 1954.

22. French, R. L. Social Psychology and group processes. In Annual Rev. Psychol., 1956, 7, 63-94.

23. Gebel, A. S. Self perception and the leaderless group discussion status. J. soc. Psychol., 1954, 40, 309-318.

24. Ghiselli, E. E. The forced choice technique in self description. Personnel Psychol., 1953, 7, 201-208.

25. Gibb, C. A. The principles and traits of leadership. J. abnorm. soc. Psychol., 1947, 42, 267-284.

✓ 26. Gibb, C. A. Leadership. In Gardner Lindzey, Handbook of social psychology, Volume II. Cambridge: Addison-Wesley Publishing Co., Inc., 1954, p. 877-920.

27. Goldberg, M. L. Leadership and self attitudes. Dissertation Abstracts, 1955, 15, 1457-1458.

28. Gowan, J. C. Relationship between leadership and personality measures. J. educ. Res., 1955, 48, 623-627.

29. Guilford, J. P. Fundamental statistics in psychology and education. New York: McGraw Hill Book Company, 1956.

30. Guilford, J. P. Personality. New York: McGraw-Hill Book Company, 1959.

31. Gulliksen, H. Theory of mental tests. New York: John Wiley & Sons, Inc., 1950.

32. Hanawalt, N. G., and Richardson, H. M. Leadership as related to the Bernreuter personality measures: IV. An item analysis of responses of adult leaders and nonleaders. J. Appl. Psychol., 1943, 28, 397-411.

33. Hemphill, J. K. Situational factors in leadership. Ohio State Univ. Stud. Pers. Educ. Res. Monogr., 1949, No. 32.

34. Hemphill, J. K. Theory of leadership. Unpublished staff report. Ohio State Univ. Personnel Research Board, 1952.

35. Henry, W. E. The business executive: The psychodynamics of a social role. Amer. J. Sociol., 1949, 54, 286-291

36. Jenkins, W. O. A review of leadership studies with particular reference to military problems. Psychol. Bull., 1947, 44, 54-79.

37. Kats, I. S. A study of the stability of the self-concept and its relationship to sociometric status and sociometric perception. Unpublished doctoral dissertation, Michigan State University, 1956.

38. Maslow, A. H. Motivation and personality. New York: Harper and Bros., 1954.

39. McQuitty, L. L. Response patterns as unique predictors of educational growth. Unpublished report, University of Illinois, December, 1956.

40. McQuitty, L. L. Elementary linkage analysis for isolating orthogonal and oblique types and typal relevancies. Educ. Psychol. Measmt., 1957, 17, 207-229.

41. McQuitty, L. L. Job knowledge scoring keys by item versus configural analysis for assessing levels of mechanical experience. Educ. psychol. Measmt., 1958, 18, 661-680.

42. McQuitty, L. L. Differential validity in some pattern analytic methods. In B. M. Bass and I. A. Berg, Objective approaches to personality assessment, Princeton, N. J. D. Van Nostrand Company, Inc., 1959.

43. McQuitty, L. L. Differential linkage analysis. Unpublished report, Michigan State University, December, 1959.

44. Meehl, P. L. Configural scoring. J. consult. Psychol., 1950, 14, 165-171.

45. Meyer, H. D. and Pressel, G. L. Personality test scores in the management hierarchy. J. appl. Psychol., 1954, 38, 73-80.

46. Northrup, G. J. Some elements of leadership as seen by 16 group leaders. Personnel J., 1955, 34, 181-183.

47. Oettel, A. M. Leadership: A psychological study. Unpublished doctoral dissertation, Univ. of California, 1953.

48. Page, D. P. Measurement and prediction of leadership. Amer. J. Sociol., 1935, 41, 31-43.

49. Phillips, B. N., and Devault, M. V. Relation of positive and negative sociometric evaluations to social and personal adjustment of school children. J. appl. Psychol., 1955, 39, 409-412.

50. Porter, L. W., and Ghiselli, E. E. The self perceptions of top and middle management personnel. Personnel Psychol., 1957, 10, 397-406.

51. Porter, L. W. Differential self perceptions of management and line workers. J. appl. Psychol., 1958, 42, 105-108.

52. Porter, L. W. Self perceptions of first line supervisors compared with upper-management personnel and with operative line workers. J. appl. Psychol., 1959, 43, 183-187.

53. Raynsker, H., Jr. Relationships between the self concept, self ideal concept, and maladjustment. Dissertation Abstracts, 1957, 17, No. 2, 409.

54. Redl, R. Group emotions and leadership. Psychiatry, 1942, 5, 573-584.

55. Ross, M., and Hendry, C. E. New understandings of leadership. New York: Association Press, 1957.

56. Richardson, H. M., and Hanawalt, N. G. Leadership as related to Bernreuter personality measures: I. College leadership in extra-curricular activities. J. soc. Psychol., 1943, 17, 237-249.

57. Ruch, F. L. (Ed.) Bibliography on military leadership. Technical Research report No. 18, Human Resources Res. Inst., 1953.

58. Rundquist, E. A. Personality tests and prediction. In H. D. Freyer and E. R. Henry (Eds.), Handbook of applied psychology, New York: Rinehart, 1950, 182-191.

59. Rogers, C. R. Client-centered therapy. Boston: Houghton-Mifflin Co., 1951.

60. Schiller, M. Ego-strength in student leadership assessment: A pattern-analytic investigation. Unpublished doctoral dissertation, Michigan State University, 1959.

61. Shartle, C. L. Executive performance and leadership. Englewood Cliffs: Prentice Hall, 1956.

62. Siegal, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Co., Inc., 1956.

63. Smith, H. C. Psychology of industrial behavior. New York: McGraw-Hill Book Co. Inc., 1955.

64. Smith, M. B. Social psychology and group processes. Annu. Rev. Psychol., 1952, 3, 175-204.

65. Stogdill, R. M. Personal factors associated with leadership: a survey of the literature. J. Psychol., 1948, 25, 35-71.

66. Stogdill, R. M. Leadership, membership and organization. Psychol. Bull., 1950, 47, 1-14.

67. Stogdill, R. M., and Shartle, C. L. Methods in the study of administrative leadership. Res. Monogr. No. 80, Bur. Bus. Res., Ohio State Univer., 1955.

68. Thorndike, R. L. Personnel selection. New York: John Wiley & Sons, Inc., 1949.

69. Wherry, R. J., and Fryer, D. H. Buddy-ratings: popularity contest or a leadership criterion? Personnel Psychol., 1949, 2, 147-159.

70. Williams, S. B., and Leavitt, H. J. Group opinion as a predictor of military leadership. J. consult. Psychol., 1947, 11, 283-291

71. Van Dusen, A. C. Measuring leadership ability. Personnel Psychol., 1948, 1, 67-69.

72. Dictionary of occupational titles. U. S. Employment Service. Washington, U. S. Govt. Printing Office, 1949.

73. Leadership and supervision. Personnel Management Series No. 9, U. S. Civil Service Commission, 1955.

Appendix A

Letter of Introduction to Companies

MICHIGAN STATE UNIVERSITY EAST LANSING

DEPARTMENT OF PSYCHOLOGY

The purpose of this letter is to seek your cooperation in a research program which might prove of mutual help to both of us.

The general purpose of the research is to attempt to differentiate leaders from nonleaders, after controlling for certain relevant variables. In analyzing the results, both conventional and newer, more refined statistical procedures will be used. The ultimate purpose is to develop an instrument which will assist in the selection of men for supervisory and managerial positions.

In the prospectus and other material enclosed, full details of the proposed study are presented, including the instruments which will be used. The prospectus presents the study in its broadest application. We are willing to adapt the study to the individual facilities and interests of your organization.

To execute the proposed research, approximately two hundred supervisors would be required to complete the questionnaires. It would require a maximum of one hour and a half for a supervisor to complete all four questionnaires. After the study is completed, we would present to your organization the full results of our findings to use at your discretion.

In reacting to this proposal you might appreciate having some background information about me. I'm currently working on a Ph.D. in industrial psychology at Michigan State University, under the direction of Professor Louis L. McQuitty, Head of the Department. I graduated at Hunter College in June, 1956, cum laude and Phi Beta Kappa. I received a Master of Science degree in psychology at Purdue University in August, 1957. I recently received a National Science Foundation Fellowship which will allow me to devote full time to my research this summer. My dissertation topic has been fully approved by my committee. The next step in my research requires the actual collection of data.

If you feel your organization might be interested in participating in this research, please notify us at your earliest convenience. Specifically, I would like to know: 1. Under what conditions would you be willing to furnish subjects for the study; 2. What steps would it be necessary for me to take in order to conduct my research in your organization; 3. The tentative date on which I might be authorized to conduct the research. I would, of course, be delighted to come to your office to talk over this matter if you think there is likelihood of assistance.

Thank you for your cooperation.

Sincerely yours,

Andrew J. DuBrin

Enclosures

AJD/ob

Appendix B

Forms Utilised in Classifying Items As Trait or Situational

DIRECTIONS: Each number in the columns below corresponds to an item presented to you on a 3 by 5 card. In the space provided to the right of each number, indicate whether the item reflects the trait or situational theory of leadership. Use the following code:

T = trait or "great man" theory of leadership.
S = situational or group theory of leadership.

1.___	23.___	45.___	67.___	89.___
2.___	24.___	46.___	68.___	90.___
3.___	25.___	47.___	69.___	91.___
4.___	26.___	48.___	70.___	92.___
5.___	27.___	49.___	71.___	93.___
6.___	28.___	50.___	72.___	94.___
7.___	29.___	51.___	73.___	95.___
8.___	30.___	52.___	74.___	96.___
9.___	31.___	53.___	75.___	97.___
10.___	32.___	54.___	76.___	98.___
11.___	33.___	55.___	77.___	99.___
12.___	34.___	56.___	78.___	100.___
13.___	35.___	57.___	79.___	101.___
14.___	36.___	58.___	80.___	102.___
15.___	37.___	59.___	81.___	103.___
16.___	38.___	60.___	82.___	104.___
17.___	39.___	61.___	83.___	105.___
18.___	40.___	62.___	84.___	106.___
19.___	41.___	63.___	85.___	107.___
20.___	42.___	64.___	86.___	108.___
21.___	43.___	65.___	87.___	109.___
22.___	44.___	66.___	88.___	110.___

Appendix C

Forms Utilised in Making Configural Evaluations of Completed Biographical Information Inventories

Date _____

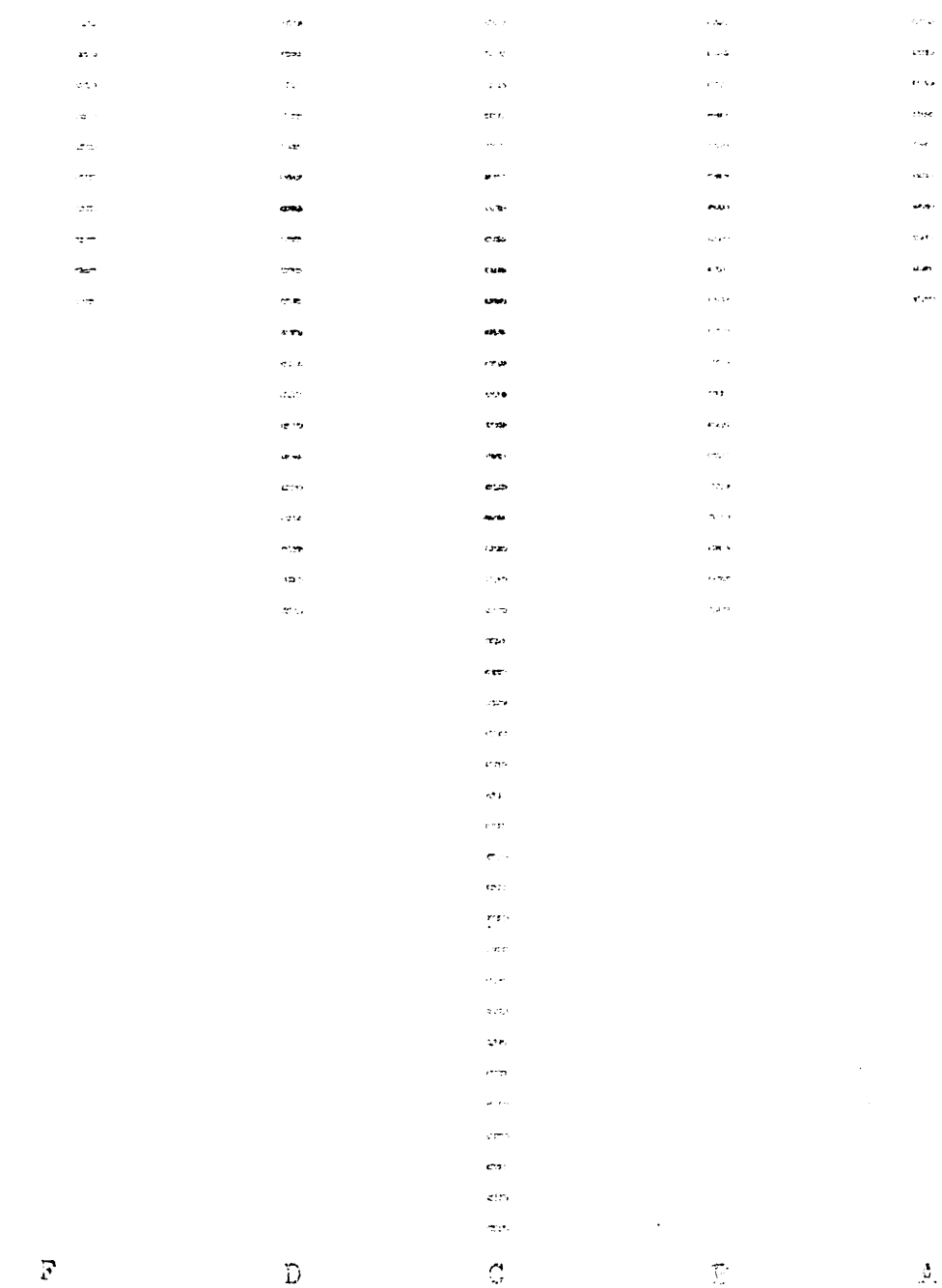
1 ___	26 ___	51 ___	76 ___	100 ___	124 ___
2 ___	27 ___	52 ___	77 ___	101 ___	125 ___
3 ___	28 ___	53 ___	78 ___	102 ___	126 ___
4 ___	29 ___	54 ___	79 ___	103 ___	127 ___
5 ___	30 ___	55 ___	80 ___	104 ___	128 ___
6 ___	31 ___	56 ___	81 ___	105 ___	129 ___
7 ___	32 ___	57 ___	82 ___	106 ___	130 ___
8 ___	33 ___	58 ___	83 ___	107 ___	131 ___
9 ___	34 ___	59 ___	84 ___	107_a ___	132 ___
10 ___	35 ___	60 ___	85 ___	108 ___	133 ___
11 ___	36 ___	61 ___	86 ___	109 ___	134 ___
12 ___	37 ___	62 ___	87 ___	110 ___	135 ___
13 ___	38 ___	63 ___	88 ___	111 ___	136 ___
14 ___	39 ___	64 ___	89 ___	112 ___	137 ___
15 ___	40 ___	65 ___	90 ___	113 ___	138 ___
16 ___	41 ___	66 ___	91 ___	114 ___	139 ___
17 ___	42 ___	67 ___	92 ___	115 ___	140 ___
18 ___	43 ___	68 ___	92_a ___	116 ___	141 ___
19 ___	44 ___	69 ___	93 ___	117 ___	142 ___
20 ___	45 ___	70 ___	94 ___	118 ___	143 ___
21 ___	46 ___	71 ___	95 ___	119 ___	144 ___
22 ___	47 ___	72 ___	96 ___	120 ___	145 ___
23 ___	48 ___	73 ___	97 ___	121 ___	146 ___
24 ___	49 ___	74 ___	98 ___	122 ___	147 ___
25 ___	50 ___	75 ___	99 ___	123 ___	148 ___

141_c ___

170	174	211	228	245	262
171	175	212	229	246	263
172	176	213	230	247	264
173	177	214	231	248	265
174	178	215	232	249	266
175	179	216	233	250	267
176	180	217	234	251	268
177	181	218	235	252	269
178	182	219	236	253	270
179	183	220	237	254	271
180	184	221	238	255	272
181	185	222	239	256	273
182	186	223	240	257	274
183	187	224	241	258	275
184	188	225	242	259	276
185	189	226	243	270	277
186	190	217	244	271	278
187	191	213	245	272	279
187a	192	219	246	273	300
188	193	220	247	274	301
189	194	221	248	275	302
189a	195	222	249	276	303
170	196	223	250	277	304
171	197	224	251	278	305
172	198	225	252	279	306
173	199	226	253	280	307

Appendix D

Forced Distribution Forms For Appendix C


F
D
C
B
A
Nonleader
Leader

Appendix E

General Instructions to Respondents

Civil Service

GENERAL INSTRUCTIONS

We are asking you to participate in an industrial research project being carried out at Michigan State University. There are three separate questionnaires to complete. Specific directions are found on the first page of each questionnaire.

All completed questionnaires will be returned directly to the campus at East Lansing, Michigan. Your division will only receive information about the study as a whole. No information pertaining to specific individuals will be given to your division. Since these results will be used only for research purposes, and have absolutely no bearing on your job, you are asked to answer each question as accurately as possible.

After completion of the study, copies of a report of the findings will be given to the State Personnel Director and to each cooperating state agency.

Thank you for your cooperation.

Andrew J. DuBrin, Research Director

Please answer the following questions:

Class Title_____

Number of people you supervise_____

Age_____

Sex_____

Education (Circle the correct answer)

Grade School	1-2 years	3-4 years	5-6 years	7-8 years
High School	1 year	2 years	3 years	4 years
College	1 year	2 years	3 years	4 years
Graduate work	_____			

Appendix F

General Instructions to Respondents

GENERAL INSTRUCTIONS

We are asking you to participate in an industrial research project being carried out at Michigan State University. There are four separate questionnaires to complete. Specific directions are found on the first page of each questionnaire.

All completed questionnaires will be returned directly to the campus at East Lansing, Michigan. Your company will only receive information about the study as a whole. No information pertaining to specific individuals will be given to your company. Since these results will be used only for research purposes, and have absolutely no bearing on your job, you are asked to answer each question as accurately as possible.

Please answer the following questions:

NAME _____

AGE _____

EDUCATION (Circle the correct answer)

Grade School	2 years	4 years	6 years	8 years
High School	1 year	2 years	3 years	4 years
College	1 year	2 years	3 years	4 years

Any other schooling _____

POSITION (If supervisor, indicate level of supervision; 1st, 2nd, 3rd, etc.)

Thank you for your cooperation.

Andrew J. DuBrin, Research Director

NOTE: If you want a personal report of your questionnaire results, please complete the following:

HOME ADDRESS _____

_____

(Go on to next page)

Appendix C

Biographical Information Inventory

BIOGRAPHICAL INFORMATION INVENTORY

NAME _____

INSTRUCTIONS: Following are a number of questions asking biographical information. For some questions it might be difficult to recall exact information. Please do not leave these questions blank, but give approximate answers.

I. High School

Clubs, teams or organizations in which you were a member	Offices or positions held in each, if any
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

II. College

Clubs, teams or organizations in which you were a member	Offices or positions held in each, if any
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

(Go on to next page)

III. Clubs, teams or organizations outside of school or business (examples: Elks, Country Club, Bowling Team).

Name of Club, team or organization	Position or title held
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.
9.	9.

IV. Vocational or business positions held during the last ten years (list present position first; next most recent, etc.).

Name of Organization	Title or Position	Number of Promotions Received in Each
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.
7.	7.	7.
8.	8.	8.
9.	9.	9.
10.	10.	10.

(Go on to next page)

Appendix H

Self-Situational Inventory

SELF CONCEPT INVENTORY

NAME _____

INSTRUCTIONS: Following are a list of statements about men in positions similar to yours. After reading each statement, you are asked to check how well YOU FEEL the statement applies to you.

Remember, the best answer to any question is your personal judgment of how well YOU FEEL the statement applies to you.

EXAMPLE:

0. I am very good at dealing with other people.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ✓

(The person who answered this statement felt it applied to him always.)

- -

1. The members of my group think I can get them what they want.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

2. I influence people around me more than I am influenced by them.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

3. I control others in the pursuit of a common cause.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

4. I create conditions such that my position eventually becomes necessary.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

5. If the members of my group took a poll, I would be voted the leader.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

6. When I move in a particular direction, others follow me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

7. I am accepted and noticed by people under me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

8. I help people reach a goal they think is desirable.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

9. My authority comes from the people under me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

(Go on to next page)

10. My goal is to "become one of them."

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

11. Many of my actions disregard the ideas of members of the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

12. My acts increase my understanding of and my knowledge about what is going on in the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

13. I stress making it possible for members of an organization to work together.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

14. I exert more influence in goal setting or goal achievement than most other persons in my organization.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

15. I get things done on the basis of my own initiative.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

16. I help the members of the group to learn from their experience.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

17. I keep responsibility for making decisions wholly within the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

18. I help the group to determine its procedures.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

19. I prod men under me toward achievement and effort.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

20. I set levels for achievement and effort.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

21. Some of my acts express disapproval of the men under me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

22. An important part of my job is to keep group members informed.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

(Go on to next page)

23. I help bring about the sharing of information in my group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

24. I help individual members adjust to the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

25. I try to act on behalf of the members of my group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

26. Mixing with the men under me is an important part of my position.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

27. I help bring about mutual cooperation among people.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

28. A large part of my work involves exercising authority and making decisions.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

29. I plan my day's activities in detail.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

30. I see that a member is rewarded for a job well done.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

31. I have members share in making decisions.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

32. I put group welfare above the welfare of any member.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

33. I draw a definite line between my self and the rest of the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

34. I get approval on minor matters before going ahead.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

35. I maintain definite standards of performance.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

36. I set an example by working hard myself.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

(Go on to next page)

37. I yield to others in a discussion.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

38. What other members of my group attempt to achieve means a lot to me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

39. I try to keep things as they are.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

40. I follow the guidance of the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

41. I am successful in getting other people to follow me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

42. I organize new ideas and practices.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

43. I believe firmly, defend doggedly.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

44. I always get the job done.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

45. I keep my eyes open for opportunities to advance.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

46. I act superior to members of my group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

47. I stress being a socially acceptable person in my mixing with other members of the organization.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

48. I stress getting the job done.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

49. I'm aware of the opinion of group members on matters important to them.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

(Go on to next page)

50. I am successful in maintaining "esprit de corps" among the members of my group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

51. I help the group organize itself.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

52. My actions influence the organization rather than individual persons.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

53. My aggressive actions help me control people under me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

54. It is through special abilities that I can control other people.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

55. I possess certain abilities which distinguish me from the rest of the group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

56. I am able and willing to assist group members in doing what they want to do.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

57. I am very sure of most of my actions.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

58. I'm pretty well able to size up my own assets and abilities.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

59. My approach to my job is characterized by my ambition and drive.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

60. I work hard all the time.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

61. I'm enthusiastic about most of my activities.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

62. I find working with my group interesting and challenging.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

63. I seem to talk more than most people.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

(Go on to next page)

64. I bring about acts which help solve mutual problems.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

65. I generally get along with almost everyone in my group.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

66. My actions tend to increase cooperation among group members.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

67. I follow routine to the letter.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

68. I consider the organization part of me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

69. The group is dependent upon me.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___

70. I am easy to understand.

Never ___ Seldom ___ Occasionally ___ Often ___ Always ___