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A Study of Experimental Measures of Leadership Applied to a Practical Problem of Leader Identification

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A STUDY OF EXPERIMENTAL MEASURES OF LEADERSHIP APPLIED TO A PRACTICAL PROBLEM OF LEADER IDENTIFICATION

by

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LIFE

Edward M. Flaherty, Sr., was born in Waterloo, Iowa, January 31, 1925, and was graduated from Sacred Heart High School of that city in May, 1942. He was on active duty with the United States Navy for approximately three years during World War II.

For major studies in Biology, Gonzaga University, Spokane, Washington granted the degree of Bachelor of Science to the writer in June, 1949. He began his studies at Loyola University, Chicago, Illinois in September, 1950. In January, 1951 he joined the staff of the Loyola Center for Guidance as an assistant psychologist, and in September, 1952 he began as a teaching fellow in the Department of Psychology, at Loyola University. The Master of Arts degree for studies in clinical psychology was conferred in February, 1954.

When recalled to active military duty in March, 1953 he was reassigned to the Medical Service Corps of the United States Navy as a clinical psychologist. Since that time his principal duty assignments have been as a staff psychologist at the U. S. Naval Hospital, Bethesda, Maryland, at the Neuropsychiatric Unit at the U. S. Naval Training Center, Great Lakes, Illinois and at the U. S. Naval Hospital, Camp Lejuene, North Carolina in that order. He returned to the installation at Great Lakes in September, 1956, and remained there as the senior clinical psychologist until resuming full time studies at Loyola University in the fall of 1962. His return to studies for this academic year was under the auspices of the United States Navy.

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the U. S. Naval Training Center also rendered similar valuable assistance which the author gratefully acknowledges.

Last, only for emphasis, heartfelt thanks goes to the author's wife and our children for their exemplary forbearance.

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In accordance with Article 1252 of United States Navy Regulations it is stated that the opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The extensive literature on leadership theory and research suggests that, as a behavioral phenomenon, leadership is as common as dust, as elusive as mercury, and an inveterate polymorph. This resistance to exposition leadership shows apparently has whetted the investigative appetite of many psychologists, according to the summary data reported by Strodtbeck and Hare. Their bibliographic review revealed that items in the literature reporting small group studies increased from .5 to 152.5 per year between the years 1890 and 1953.[1] Recognizing leadership as the core concept in many, if not implicitly in all, studies of group processes, its contribution to this spread of interest is readily inferred. Such accelerated production of leadership literature in the last decade apparently has not changed. This attention reflects not only the extent of theoretical consideration and practical investigation of leadership, but firmly establishes this particular aspect of behavior as a proper matter for scientific investigation. However, when it comes to ultimate understanding and final definition, the evidence is noted to be content rich and concept poor.

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[1]F. L. Strodtbeck and A. P. Hare, "A bibliography of small group research. (From 1900 through 1953), "Sociometry, XVII (April, 1954), 110.

Few scientific terms have been defined in so many ways as have "leadership" and "leader." Selvin, like many others, cites Gibb's list of five definitions of leaders, all of which invest this function or attribute in a single person.[2] The person in this role may change from time to time within any group, and even several persons may function at a single time to fill the prescribed role. Such is the protean nature of leadership.

The evolution of the definition of leadership was interestingly commented upon by Mann.[3] Controversy was generated first by the approach to leadership as an attribute of the individual, consistent for him in varying circumstances. Accumulated evidence necessitated modification of the trait approach. Trait was contrasted with status, and leadership was then conceived of as a function of the individual's personality, or alternatively, as emerging from the interaction of leaders and followers. In the latter view, leadership was seen as subject to the influence of the group's task, composition, and culture. Mann reports that the dilemma was resolved in compromise. The formulation then stated that " . . . . an individual's leadership status in groups is a function of his personality and the particular group setting."[4]

In this evolution Mann saw a parallel to the nature-nurture controversy, resolved compromisingly also in terms of concessions regarding the limits of

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[2]Hanan C. Selvin, The Effect of Leadership, (Glencoe, Ill., 1960), p. 8.

[3]R. D. Mann, "Areview of the relationship between personality and performance in small groups." Psychol. Bull., LIX (July 1959), 247.

[4]Ibid.

each factor for the operation of the other. From hence, research in the older controversy has progressed through study of the relative importance of each, heredity and environment, and the interaction between these two major factors.[5] In spite of intensive attention and investigative effort leadership, regarded in its two aspects, has not received the same degree of clear and comprehensive definition. "Progress in theory development and generalizable findings is less than might be expected when one considers the many hours of labor expended in the collection and analysis of data."[6]

As noted above, definitions of leadership take many forms. Following Gibb's proposals, cited by Selvin, types of leaders may be " . . . (1) an individual in a given office; (2) the central person of a group; (3) the person considered the most influential by members of a group; (4) the person who is the most effective in creating a structure or consistency in the interaction of the group members."[7] Besides specifying the possible leader roles in terms of the situation (in accord with the compromise noted by Mann), Gibb's delineation alerts one to the dynamic nature of leaders and their functions.

Carter also listed five specifications of the meaning of the concept of leadership, but directed more attention toward group processes than toward the individual. After briefly discussing four of these notions, Carter gives a

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[5] Ibid.

[6] G. B. Bell, "Methodology in Leadership Research," Amer. Psychol., VIII (August, 1954), 329.

[7] C. A. Gibb, "Leadership" in G. Lindzey (ed.) Handbook of Social Psychology, (Cambridge, Mass., 1954) cited in H. C. Selvin, p. 8.

strong endorsement to the practical approach, considering the state of knowledge about leadership at the time of writing. This endorsement favored definition of leadership in terms of leadership behaviors. The operational definition is favored for the usual reasons--exactness immediate to the studied situation, and flexibility for specification in other situations are allowed.[8] Leadership obviously is not a neat and simple concept.

In one sense, Carter and Stodgill appear to be in accord. The latter remarked that the " . . . qualities, characteristics, and skills required in a leader are determined to a large extent by the demands of the situation."[9]

Still others have directly and explicitly subscribed to influence as defining the specific characteristic of leadership.

Since the area of leadership has been staked as a claim by social psychologists, the prevalent definitions delineate leadership as a socially emergent phenomenon, springing afresh in each newly occurring situation.

Early reviews did little to reveal support for the trait approach to leadership. However, Mann's more recent review has shown some trends which suggest that further research in the trait approach may now be timely and fruitful. Though it may be commented that his pooling treatment of results from various studies violates the integrity of the studies and the meaning of the results, Mann clearly stated his presentation was not to be a definitive

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[9]R. M. Stodgill, "Personal factors associated with leadership. A survey of the literature," J. Psychol., XXV (January 1948), 63.

work, but instead he hoped it might stand as a recapitulation and a point of departure for further research.[10] Some studies included by Browne and Cohn also call for a re-appraisal of the trait approach (Bell and French, Cattell and Stice, Chowdry and Newcomb, Cowley, and Henry).[11]

The trait approach appears particularly suitable to certain instances of military leadership. For example, identification of the combat leader by a test of fire, even at its best, is not economical or scientific. It is a deplorable example of the adage, "Nothing succeeds like success." The only recommendation for such procedure is the devastating effect of the alternative of no leader taking over. The nature of military organizations and the mission of the defense structure have changed very dramatically with the onset of the atomic age, and the prevailing insidious conflict of ideologies on the political scene. A need that has received little attention from the behavioral sciences is that for specific knowledge about the appointed leader in formally organized and structured groups or units, particularly as are found in military organizations. Though engineering specialists and the technocracy of physics may spell the difference between success or failure in any large scale test of the modern defense organization, the military structure and function still rest on the fundamental of a hierarchy of authority. The importance of this aspect of a military organization is not at all lessened,

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[10]Mann, 241.

[11]C. G. Browne and Thomas S. Cohn (eds), The Study of Leadership, (Danville, Illinois, 1958).

but rather crucially highlighted, in an electronic, nucleonic defense organization maintained at a state of push-button readiness.

Effectiveness of leadership has been investigated as related to communication, interpersonal activity, status and a large inventory of other forms of the processes of groups. Reviews most frequently are limited to studies with small groups. This narrowness of scope may be no more by choice than by material available. Comparatively little work has been noted in the literature which investigates clearly identified leaders in obviously large groups, particularly in formally structured groups with appointed leaders. It seems that such more or less untapped circumstances of leadership are tailor-made for the investigation of the trait concept of leadership and for its application in the identification of leaders. Such an approach is potentially a source of great value to a program of selection and training of individuals to qualify for appointment as leaders.

A service-wide program to revitalize and augment the spirit of real leadership in the United States Navy is now in effect, inaugurated by a policy statement from highest authority within the Navy.[12] The existence of this program testifies to the importance of this commodity to the military organization.

The finest ideals of military leadership should be exemplified in those individuals responsible for the training and orientation of the newly recruited

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[12]General Order No. 21, "Naval Leadership", U. S. Department of the Navy, Washington, D.C., 17 May, 1958.

volunteer personnel. While undergoing this training, recruits are gaining their first impressions of military life, of its patterns, and of the importance of its purpose. The foundations of their naval career are being laid. Personnel charged with the serious responsibility for effecting this introduction should be in every respect the best available to meet these responsibilities. Unfortunately, the men available are not always of the desired degree of effectiveness, some individuals are immediately recognized as unsuitable for such duties when they report to the training command. Disqualification after a costly and troublesome transfer is an administratively unpleasant and difficult procedure and an economic loss to the Navy and the man. In addition, to be declared unacceptable to train recruits is personally disturbing to the disqualified individual, and it erodes the morale of the men who, as qualified, loyally remain to face the difficult assignment in such training.

Ideally, only the potentially best-suited men should be assigned initially to such duty. However, little effort has been organized to identify these men prior to assignment. Routinely, candidates for the duties of a company commander at one navy boot camp were required to report for a limited evaluative interview conducted by one or more members of a staff of clinical psychologists and psychiatrists. Interest in the practical aspect of the investigation being reported herein was stimulated, in part, by the experience of the writer as a member of a staff conducting these interviews. It was a screening procedure, and left much to be desired in terms of the extent and nature of the professional responsibility, and particularly in terms of standards against which to predict. The procedure was based on the grossest of

personality characteristics for detecting unsuitability and for occasionally raising a question of limited suitability. In those instances, the decision was deferred in favor of the test-by-fire field technique noted above. There is no direct approach, in such stop-gap measures, to the basic problem of leadership effectiveness in this setting. The first problem is that of investigating the potential of the individual for performance in this role of the company commander--the leader--of naval recruits in basic training. The study reported here is pertinent. It is an exploration of possible pre-assignment selection methods, and/or an aid in training potential company commanders. This is the practical aspect of the study.

Antecedent to the applied approach to leader effectiveness is the theoretical approach. The complementary aspect of the study herein reported is that which is relevant to certain theoretical studies which followed the predominant trend of small-group studies in leadership.

This study is an investigation of the transfer and usefulness of experimentally derived measures of leadership for the purposes of identifying effective leaders in appointed, authoritative office in a military organization. The subjects are leaders of relatively large, formally organized and structured groups in a military organization. The purpose of this study is two-fold. In regard to theoretical aspects, it first investigates the extension of experimentally derived measures of leadership in small groups to leadership as it occurs in large groups. This approach tests theoretical implications of the prevalent research of leadership in small groups. Secondly, the study is intended as a field test of the

experimental methods and results and contrasts three theoretical approaches to the identification process: an assessment of leadership potential emerging in a leaderless group discussion; a trait approach through measurement of personality factors associated with relative effectiveness of leadership; and finally, the relationship between leadership effectiveness and the individual's attitudes and interpersonal perceptions.

This type of investigation seems justified from both the theoretical and practical interests. Previously proposed methods of identifying small group leadership are replicated in an attempt at cross validation. The prediction of leadership performance in a formal organization is investigated. As noted above, the practical implications of such prediction can be of use in the selection and psychological assessment of prospective company commanders in a naval recruit training program.

In the presently reported investigation experimental measures of leadership effectiveness, derived in small, informal, artificial groups (and some natural groups under experimental exploratory conditions) have been applied to a single sample of subjects. The subjects of the study have been assessed as to their performance both in small artificial groups and in a natural situation of formal, appointed leadership in a large group. Also, measures of personality characteristics have been obtained which have been reported as useful in identifying leaders.

This study is an investigation of the interrelationships of leadership occurring in formally organized, large groups and in informal, small groups. The relationships of certain personality traits and interpersonal

perceptions, i.e., attitudes to these two forms of leadership also were studied. The following hypotheses were formulated concerning these various relationships.

Hypothesis 1. The degree of effectiveness of leadership in the formal, natural, leader role, measured by combined achievement scores and superiors' ratings of performance, is directly related to the habitual attitude of psychological distance, as measured by low ASo scores.

Hypothesis 2. Individuals attaining greater degrees of effectiveness as formally appointed leaders in large groups do not tend to emerge as leaders showing effectiveness (influence) in small, informal leaderless groups. That is, large formal groups differ from small, informal groups in regard to individuals identified as leaders by their degree of effectiveness.

Hypothesis 3-A. On the basis of personality traits, as measured by the Sixteen Personality Factor questionnaire, the relative effectiveness of leadership demonstrated in small, informal, artifical groups can be predicted. That is, lambda, the index of relative effectiveness of leadership demonstrated in small, informal discussion groups can be predicted by L, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Hypothesis 3-B. On the basis of personality traits, as measured by the Sixteen Personality Factor questionnaire, the effectiveness of leadership demonstrated in large, formal, natural groups can be predicted. That is, the index of leadership effectiveness in large, formal, natural groups, based on a combination of achievement scores and superiors' ratings of performance,

can be predicted by L, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Hypothesis 4. Personality trait patterns, as measured on the Sixteen Personality Factor questionnaire, can be predicted by extrapolation from the interpretation given ASo scores. That is, given a very high or very low ASo score, and following interpretations given these scores by Fiedler, the presence of certain personality traits as measured by the Sixteen Personality Factor questionnaire can be predicted.

This study is, in a broad sense, a cross validation of experimental and applied, of artificial and natural methods of leadership assessment and prediction. It is a departure from the usual approach to leadership as it occurs or emerges in informal, relatively unstructured small groups. This study focuses on the individual in a relatively unique appointed leadership role in a formally structured unit of the United States Navy.

CHAPTER II

REVIEW OF THE LITERATURE

This review will first sample some of the general conceptions and psychological research relevant to leadership, and then summarize work from which have been derived the various measures of leadership to be used in this study.

I. The Analysis of Leadership: Concepts and Definitions

Reference to the paradigms for the study of leadership proposed by various writers readily furnishes an impression of the diverse forms leadership takes, and the nearly imponderable complexities accompanying them. (Bass, [13] Morris and Seaman,[14] Stodgill and Coons[15]). These complex, multidimensional, comprehensive diagrams stand as a contribution to the literature of leadership theory and research. One, by Stodgill and Coons, is presented here in Figure 1.

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[13]B. M. Bass, Leadership, Psychology and Organizational Behavior, (New York, 1960), p. 448.

[14]R. T. Morris and Melvin Seaman, "The Problem of leadership; an interdisciplinary approach." Amer. J. Sociol., LVI (September 1950), p. 151.

[15]R. Stodgill and A. E. Coons cited in B. M. Bass, Leadership, Psychology and Organizational Behavior, (New York, 1960), p. 88.

Reported studies of leadership usually focus on a single dimension or relationship. The complex interdependence as represented in the various aspects of the chart in Figure 1 obviously limits investigation in this manner.

As noted above in the Introduction, Chapter I, leaders and leadership are defined in numerous ways. Even more extensively than Gibb, Fisher lists seventeen polar typologies (e.g., cognitive vs. authoritative, personal vs. impersonal, general vs. specialized) and three tri-category types of leadership (e.g., autocratic vs. paternalistic vs. democratic, small groups vs. mass leader vs. administrator).[16] Such lists are a further index of the variety of conceptulizations of the process, relationships and function of leadership.

L. F. Carter's five specifications of the meaning of the concept of leadership are succinctly stated and thoughtfully justified.[17] They direct attention more toward group processes than toward the individual. Carter points to the leader (1) as the person able to focus the behavior of the group members; (2) as the person leading the group toward specific group goals; (3) as the sociometrically selected member; and (4) the person who has demonstrable influence upon the group syntality (after Cattell). In preference to these approaches, Carter endorses a very practical fifth approach--that of defining leadership in terms of leadership behaviors operationally defined.

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[16]B. M. Bass, Leadership, Psychology, and Organizational Behavior, p. 86-87 citing L. F. Fisher, Philosophy of Social Leadership According to Thomistic Principles. (Washington, 1948).

[17]Launor F. Carter, pp. 22-25 in Browne and Cohn, The Study of Leadership.

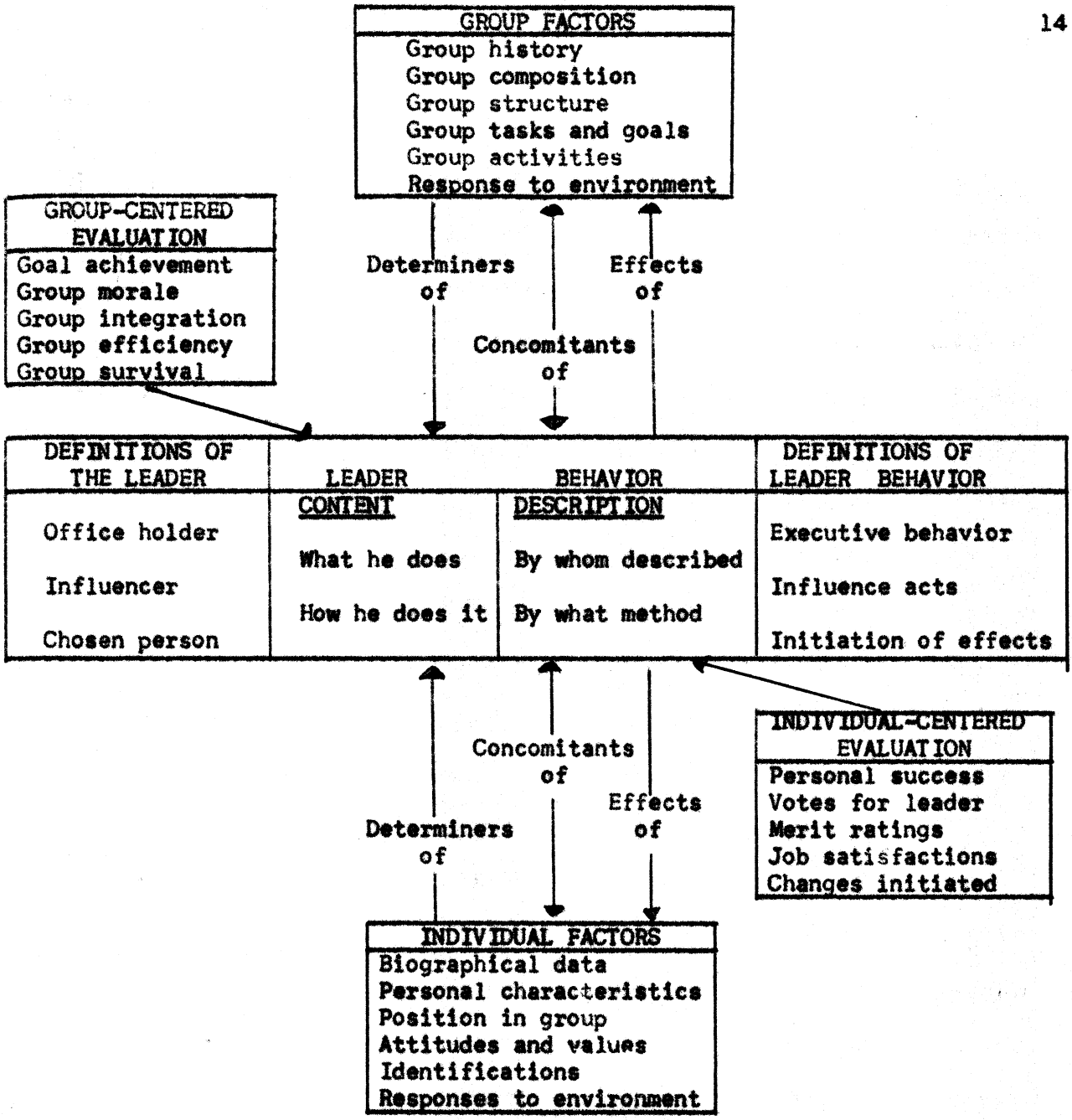

FIGURE I

PARADIGM FOR THE STUDY OF LEADERSHIP

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[18]R. Stodgill and A. E. Coons. "Leader behavior: its description and measurement." Bur. Bus. Res. Monogr. ii, Ohio State Univ., 1957 cited in Bass, Leadership, Psychology and organization, p. 88.

The latter type of definition is favored because it "allows the experimenter to define with exactness what is to be considered leadership behavior in the immediately studied situation, and at the same time provides flexibility of definition or specification of these behaviors from situation to situation."[19] The necessity for the further advantage of an operational definition is to a guard against improper comparisons of leadership from situation to situation (nursery school children, coeds, industrial executives, and combat soldiers).

Carter's approach to leadership research is direct and though it appears to be loosely general, isrealistic. All typing, definition, and specifications in approach remain unsatisfactory so long as a universal, indivisible and measurable concept of leadership is sought. The value of various forms of statements of and about leadership, examples of which have been noted here, is plainly heuristic. But, as will be indicated, Carter's position is justified and such heuristic guides are rewarding as well as appropriate.

II. The Trait-Situation Orientation: Paractical and Theoretical

Such rewards were not immediately evident to Jenkins. His 1947 review was a search for material to aid in the practical problems of selecting military leaders.[20] He sampled empirical studies of five types, grouped according to the characteristics and sources of the populations studied: industrial and governmental executives, scientific and professional personnel, children--both in and out of the school situation, and lastly, military leaders. Data in the

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[19] Ibid., 24.

[20] W. O. Jenkins, "A review of leadership studies with particular reference to military problems." Psychol. Bull., XLIV (January, 1947), 54-79.

first four types of studies were gathered by a wide variety of methods: persons seen as successful or powerful in their organization were polled for their opinions about the attitudes and behaviors important for leaders; broad historical examinations (birth galaxies were discovered among British botanists and great military leaders' fame seemed dependent on national conflict); among supervised subjects, such as preschool and school children, leaders were identified through observation by others, by peer nominations, and by situational tests. These latter techniques remain in prominent use today.

Jenkins' review of military leadership studies is of especial interest. He found that traditionally accepted writings on military leadership are of the nature of rules of thumb and platitudes offered by those who are sage and experienced. Cited as typical was a manual for young naval officers, basing leadership success on widely accepted principles. However, the supporting empirical evidence and methods sought by Jenkins was lacking in this type of writing. It must be this kind of cultural wisdom and truisms which prompted Newcomb to recall another truism by which he appropriately declared that no one knows whether what everyone knows is true is really true until it has been properly tested.[21]

Continuing his review, Jenkins outlined the American, British, and German nations' elaborate pre-war and World War II programs of selection without follow-up. He commented on the "uselessness of elaborate testing techniques

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[21]T. M. Newcomb, "The prediction of interpersonal attraction." Amer. Psychol., XI (November 1956), p. 586.

hand in glove with complete disregard of their necessary concomitant--standardization, objectification, and validation."[22] Unfortunately, the prescribed follow-up was not much more revealing, as exemplified in the familiar OSS studies.[23] But of course, therein the shortcoming lay in the fact that the criterion situations and information were inconsistent and not comparable.

The results of two studies of leadership among non-coms and combat officers of the U. S. Army indicated that constructive morale attitudes in the former and retrospective performance evaluations for the latter were most highly correlated with field demonstrations of leadership potential and achievement.[24]

More generally, leaders appear to be superior to group members in at least one of a variety of abilities generally, and in each particular field "need and tend to possess superior general or technical competence or knowledge in that area (other than intelligence),"[25] leaders share some interests and social backgrounds with their group, and (contrary to other reviewers) Jenkins noted that several studies suggest that leaders are superior in

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[22]Jenkins, p. 74.

[23]OSS Assessment Staff. Assessment of Men; selection of personnel for the Office of Strategic Services. (New York, 1948), pp. 414 - 417.

[24]Jenkins, p. 66.

[25]Ibid., p. 75.

physique, age, education, and socio-economic background. Jenkins also opined that no single trait had been isolated which set the leader apart from the members of his group, leader characteristics varying widely both within and between situations. Apparently, about all that could be said about leadership was that it is specific to the situation (including the measurements employed).

Jenkins found no ready-made answer to the then very urgent problem of leader selection in the military and pessimistically concluded his review. There is some doubt that this review was sufficiently comprehensive to end in any other way. However, Jenkins' purpose limited the scope of his review since the press of war-time problems did not allow experimentation with theories about leadership in order to establish bases for particular selection methods. Theories and research from a later time to be cited below indicate considerable change from the paucity of information leading to general principles and theories of leadership which Jenkins reported available.

It should be noted, however, that Jenkins sought aid in identification of leaders in a highly specific situation--appointed leaders in a formal group with both leader and group characterized by a high degree of effectiveness. It may be that there is no single answer to the type of problem Jenkins posed. There is no evidence to suggest that a single trait could be isolated which would reliably identify a military leader in all, or even some, military situations or organizations. In spite of the rigorously formal and structured organization, an effective military leader brings infinitely more to bear in the situation than the qualification of a single trait or simply living by the book, as might be inferred from Jenkins and some of his sources.

In contrast to Jenkins, Stodgill was concerned primarily with theoretical and speculative studies. This approach lent a more scholarly air to his comprehensive survey, which attempted to find evidence for the isolation of traits and characteristics of leaders.[26] Cross-checking seven methods of identification and twenty-nine factors or characteristics Stodgill reported from a bibliography of 124 items. He summarized his findings in seven statements, according to the frequency and magnitude of positive or negative correlations to leadership. His integration of results from various studies revealed the following: highest overall correlations with leadership were shown for originality, popularity, sociability, judgment, aggressiveness, desire to excel, humor, cooperativeness, liveliness, and athletic ability, (in approximate order of magnitude of average correlation coefficients); lower positive correlations with leadership were common to chronological age, to a group of physical attributes (height, weight, physique, energy, appearance), and to personality traits of dominance and mood control. The evidence was found by Stodgill to be evenly divided between leadership and traits such as introversion-extroversion, self-sufficiency, and emotional control.

Direct observation and analysis of biographical and case-history data were the bases for descriptions of leadership in the most fruitful studies from the point of view of understanding leadership.[27]

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[26]R. M. Stodgill, "Personal factors associated with leadership, a survey of the literature," J. Psychol. XXV (January, 1948), 35-71.

[27]Ibid.

These methods may be compared to Jenkins' notation of three methodological techniques which seemed most fruitful: nomination of leaders by group members, surveying the characteristics of outstanding individuals through questionnaires and biographical information, and using selection tests keyed to the situation under consideration.[28] Whether approached theoretically or practically, it seems that the remaining obstacles to further isolation of leadership traits are the criterion problems and working definitions. The common reference of these reviewers to biographical or historical data is of interest.

Continuing his summary, Stodgill listed six general headings of factors possibly of aid in understanding leadership and selecting leaders: capacity, achievement, responsibility, participation, status, and situation. He commented that leaders always have a coordinating responsibility associated with attainment of group objectives, and leadership implies activity, movement, and getting work done. Other significant aspects of the attribute of leadership are intelligence, alertness to needs and motives of others, and insight into situations, all reinforced by such "habits" as responsibility, initiative, persistence, and self-confidence. But Stodgill reported no evidence as to the basic nature of the personal qualifications of leaders vs. non-leaders.

Nevertheless, he contended that, though the complex of factors determining status in a group is difficult to identify and understand, selecting leaders should be less difficult than training non-leaders to become leaders.

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[28]Jenkins, p. 74.

This conclusion of Stodgill's, pertinent to the present study, is based on the hypothesis that a positive relationship between certain measures of leadership and performance effectiveness may be an adequate basis for a method of selection of leaders. However, no strong brief can yet be made for "trait" selection or prediction of leadership performance in the face of lack of positive evidence of this relationship. This suggestion of Stodgill's is not in accord with the current trend in leadership training for developing situational insights, and for sensitivity training in human relations workshop settings, as represented in the seven studies in the training section of the Browne and Cohn volume.[29]

Gibb and Stodgill, agreeing with Ackerson, present the viewpoint that the relationship of leaders and followers is not antithetical, as would be expected. It is speculated that the antithesis of leader is characterized by indifference, incapacity, or unwillingness to follow or to lead.[30, 31, 32] This distinction may hold a key to the interpretation of leadership-study results which appear to be inconsistent and unreliable, particularly regarding the traits of leaders. Perhaps the issue is whether or not there are traits

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[29]Browne and Cohn, pp. 417-473.

[30]C. A. Gibb, "The principles and traits of leadership." J. Abnorm. Soc. Psychol. XLII (July 1947) 271.

[31]Stodgill, 67.

[32]L. Ackerson, Children's behavior problems. II Relative importance and intercorrelations among traits. (Chicago, 1942) cited by Stodgill, 67.

of potential and/or effective leaders-followers. If a relationship between leadership potential and traits were established, the appointment to a leadership position should be given to the more promising individuals and should result in greater leader effectiveness.

In conclusion, Stodgill does not see traits as abstracted from the situation, but acknowledges the large component of interaction and the situational influences on both status and effectiveness. Though he cites the "devastating evidence" of Newstetter, Feldstein and Newcomb against the concept of measurable traits, Stodgill does not find this evidence conclusively for or against a theory of leader traits.[33] Stodgill refers to other evidence which may be interpreted in terms of knowledge of personality and dynamics, rather than of social processes, and as such, lends encouragement to the further investigation of the trait theory.[34] The proposal of Cattell, to be presented in detail later here, is one approach to such a trait identification, and it meets the specifications of operational definitions (per Carter) and of criterion keyed measures (after Jenkins) of the leadership function.[35]

Stodgill's general theoretical collation has stimulated work in leadership investigation. Group processes have become the mode in this area. However, the operational definition of leadership, in terms specific to the situation, remains the single factor common to leadership in most studies.

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[33]Stodgill, 65.

[34]Ibid.

[35]R. B. Cattell and G. F. Stice, "Four formulae for selecting leaders on the basis of personality," Hum. Relat. VII (November 1954), 493-507.

A singular concept of leadership is yet to be defined which can aid general research. A possible exception is Bass' definition within the framework of his interaction theory of leadership. "Leadership is said to occur when one member of a group, A, behaves in a way directed toward changing another member's, B's, behavior."[36] This definition places the leadership source in one individual, "A", and in a fairly well delimited way expresses an interaction function termed leadership.

This specificity is not common to all the definitions appearing throughout the fifty-one reports of scientific studies of leadership selected by Browne and Cohn.[37] Definitions are lost in the specification of attendant, modifying circumstances and processes which are given primary consideration.

III. Identifying Leaders and Leader Behavior

Representing the progress in the development of leadership theory and research are the fifty-one reprints and abridgements of works included in the volume edited by C. G. Browne and Thomas S. Cohn and presented in 1958.[38] Articles were grouped into four areas of leadership study: The Analysis of Leadership; Identifying Leaders and Leadership Behavior; The Dynamics of Leadership; and Training.[39]

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[36]B. M. Bass, Outline of a theory of leadership and group behavior. Tech. Rep. 1, Contract N7ONR 35609. Baton Rouge, 1955. p. 3.

[37]Browne and Cohn.

[38]Browne and Cohn, Studies in Leadership.

[39]Ibid., xi-xv.

The Ohio State Leadership Studies program is outlined by Morris and Seaman, with the recommendation for the interdisciplinary approach as suitably comprehensive for research in leadership.[40] Carter's discussion of definitions previously commented on here was also included in the section on analysis of leadership.[41] Stodgill's attempt to anchor leadership in the group is also presented. He discusses leadership here as an attribute of the group, dynamic in nature, and basically as an interaction process which varies in amount from time to time.[42] Jennings extensive analyses of leadership as related to sociometric choice are summarized for comparison with other views in the volume.[43] The highly abstract concept of syntality, as defined by Cattell, is discussed in terms of group attributes.[44] Cattell's enthusiasm for concepts which hold such broad promise is tempting, if not contagious. However, as Carter pointed out, the parameters of groups necessary to describe or measure the syntality of a group are not sufficiently well known, methods of measurement undesignated or uncertain, and the relationship of the parameters to

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[40] Ibid., 12-21.

[41] Ibid., 22-25.

[42] Ibid., 31-40.

[43] Ibid., 41-45.

[44] R. B. Cattell, "New concepts for measuring leadership, in terms of group syntality." Cited in Browne and Cohn, p. 47.

leadership are not sufficiently clear to use in leadership research.[45] With less specific theory than had Cattell, Murphy offered situational analysis as a method for identifying leaders.[46] The method involves job analysis related to group's goals and the group's needs, and sociometric analyses which, though ostensibly are for identifying leaders, appear to be concerned more with the substrates of popularity, agreeableness, and desirability as an associate or team mate. The leadership which Murphy analyzes and associates with situational analysis is leadership of an informal nature demonstrating little which contributes to the understanding of leadership. Such approaches are not of interest in connection with the present study. The contributions of Cattell and Murphy are analyses of groups, and as such, are tangential to the identification of leaders.

Setting a slightly different slant to their sociometry, Williams and Leavitt's contribution to the Browne and Cohn volume demonstrates that sociometric judgments are informed judgments of a special nature, and as such they tell many things about the subjects not otherwise available.[47] These writers echoed Jenkins' complaint of inability to find objective methods for selecting military leaders.[48] They demonstrated that sociometric judgments were more valid than the ratings, achievements, and individual tests as predictors of

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[45]Carter (cited in Browne and Cohn), p. 24.

[46]Browne and Cohn, pp. 123-134.

[47]Ibid., 135-147.

[48]Ibid., 135.

Officer Candidate School success and combat performance for junior officers of the Marine Corps, even taking into account certain selective factors in their final population.[49] The strength of such sociometric judgments for predicting leadership was attributed by the authors to peers' opportunity for greater observation time, the realistic social context on which their personal familiarity is based, and the proximity and interaction of the subjects to each other's social-dominance behavior.[50] Group opinion scores (based on the judgment of five traits by peers) exceeded self-ratings, leaders' (superiors') ratings at two and five weeks periods of acquaintance, personal history inventories, Army GCT and MAT tests, and final grades in the school in predicting two criteria--OCS pass-fail and combat proficiency ratings. Group opinion at two weeks correlated .33(N--240) and .47(N-100) with OCS pass-fail criterion and combat proficiency ratings, respectively. Similar judgments at five weeks of acquaintance correlated .40(N--1193) and .43(N--100), respectively for the same criteria.[51] While sociometric judgment may be the most reliable of many instruments and methods for such prediction, it can be said to be as much an index of the structure of the group--if not reflecting status, and some say it does not (including Williams and Leavitt). This technique reflects a subtle awareness of interaction, and does not usually contribute to understanding leaders nor to preselecting them for membership in groups of candidates or

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[49] Ibid., 143.

[50] Ibid., 147.

[51] Ibid., 142.

leader trainees. Williams and Leavitt regard group judgment methods as a second best stop-gap measure for use while awaiting the development of good objective tests for measuring the psychological characteristics of leaders.[52]

Apparently shifting preference decidedly away from leadership related unreliably to individual traits following his 1948 review, in 1950 Stodgill described leadership in highly general, inclusive terms of group goal achievement.[53] So defined, leadership is restricted to influence within an organized group, and is more an aspect of the organization than it is an attribute of individuals. As such, leadership parallels authority, which specifies what each member's activity will be in the task or goal achievement. This is a question-begging position, or at least quite one sided. As stated in his contribution to The Study of Leadership, Stodgill fails to account for the existence, initiation, and maintenance of the organization. In one perspective at least, as leadership contributes to these aspects of organization, it is the sine qua non of organization, and should be considered as somewhat antecedent to the establishment or statement of authority, goals, and goal achievement. Recalling Carter's admonitions concerning operational definitions, however, in such an either-or debate antecedence is secondary to the difficulty of even deciding which is the chicken and which is the egg!

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[52] Ibid., 146.

[53] Ibid., 38.

Apropos of this controversy, pseudo-problem, or arbitrary assumption, it is redeeming to recall what Stodgill pointed out previously: that the ". . . very studies which provide the strongest arguments for the situational nature of leadership also supply the strongest evidence indicating that leadership patterns as well as non-leadership patterns of behavior are persistent and relatively stable."[54] Thus accepting no assumption that leadership is incidental, haphazard or unpredictable Stodgill suggests that further understanding of leadership lies in the answers to questions concerning the conditioning of social participation, insight into situations, and mood control, responsibility, and the transferability of leadership from one situation to another.[55] The latter question concerning transferability is an important underlying question in the present study.

The findings of Carter, Haythorn, Shriver and Lanzetta have some bearing on this question.[56] Analysis of leader behaviors in small work groups yielded interesting differences related to the type of task, and to emergent vs. appointed leadership. Average ratings of fifty-three categories of behavior were compared by significance of the differences of ratings for emergent vs. appointed leaders. In all instances of demonstrated leadership, regardless of task or group situation, the results indicate that leaders characteristically are involved with getting insight and analyzing the situation, and with

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[54] Ibid., 59.

[55] Ibid., 60.

[56] Ibid., 97-105

initiating the action required by the situation and goal. Some behavior varied with task and structure of the situation, however. The emergent leader in discussion task situations readily offers information, and appropriately shows agreement and approval of others. He seeks the opinions of others and avoids disagreeing openly. Also, results unexpectedly showed strongly that appointed leaders tend to conceive their function as a receptive coordinator or agent through which group activity moves toward the specified goal. This was in contrast to the emergent leaders' behavior characterized by energetic action and efforts to gain acceptance as a leader, and to defend and support his proposals and opinions. For example, the appointed leader typically assumed responsibility of a routine written recording task in contrast to the emergent leader who delegated to others this labor of writing in order to remain free to pursue and defend his position.[57]

These findings are of interest in view of the contrast of leadership occurrences in the present study. Leadership assessed by the criterion situation is to be compared with leadership emerging in a leaderless group discussion similar to the experimental conditions set up by Carter, et al. The question becomes: Is the behavior of an emergent leader (or by which a leader emerges in a leaderless group) different from the behavior of an appointed leader which is required to maintain his authoritarian role and his function in contributing to the group's goal achievement? Consideration at this point is theoretical, of course, as the present study is not directly investigating or analyzing behaviors, as such. Nevertheless, it is suggested that the highly effective formal leadership of a recruit company commander requires function

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[57] Ibid., 107.

beyond that of an agent administrator and coordinator, and as such, will be reflected in the greater relative effectiveness of goal attainment with a succession of natural groups--i.e., with several recruit companies.

Taft's account of group situational observation of applicants for a young executive trainee position is an example of extensive effort and motions for selection, augmented by the further scrutiny of the organization (management) resulting in a program of minimized benefit to either personnel selection or management.[58] There is nothing to suggest that this was an exploratory or experimental endeavor which might have justified using so many preselection screens, additional test batteries (from aptitude to projective tests), game and problems situations, discussions and interviews and forced social situations. Aware of shortcomings in the procedure, Taft anticipates question: Is prediction justified based on inferences from assessment situations which vary greatly from the job or criterion situation? Are inferences from the ability of a candidate to lead peers acceptable indications of his ability to lead subordinates?[59]

Taft's questions may well be asked of many leadership identification or prediction techniques. They obviously apply to the present study concerning experimental measures applied to a practical situation, involving measures which may be varied from the criterion situation or which involves leadership among peers compared to superior (appointed leader)-subordinate condition of leadership. As to the second question the answer is indicated, for the time

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[58] Ibid., 106-114.

[59] Ibid., 113.

being at least, by pointing to the evidence of others derived from the widespread use of the leaderless group discussion, relating results and observations to external criteria (Carter, Haythorn, et al.,[60] Bass,[61] Carter and Nixon,[62] Berkowitz[63]). The first question Taft dismisses as a truism applicable to any selection exception trial and error methods. The more appropriate reaction to observation of such "truisms" seems to be to invoke some criterion-keyed instrument or procedure, as noted here previously. It may also be found in accord with Stodgill's and others' notations cited above that there is probably not an antithetical relationship between leader and follower, but rather that evidence suggests leader-follower is one extreme of a dimension which measures indifference and apathetic group interaction at the other.[64] Hollander and Webb report evidence supporting this similarity of leaders and followers.[65]

Several studies of sociometric techniques (buddy ratings and peer nominations) were included in the Browne and Cohn compendium. (Roff, Hollander and Webb, Carter and Nixon, Wherry and Freyer) As an assessment method or predictive technique much depends on peers' familiarity prior to the criterion situation or at least during a period anticipating some goal (e.g. completing OCS training). This is not a relevent technique for the circumstances of the

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[60]Carter, et al. cited in Browne and Cohn, p. 102.

[61]B. M. Bass and I. A. Berg. Objective Approaches to Personality Assessment. (Princeton 1959), pp. 146-168.

[62]L. F. Carter and M. Nixon cited in Browne and Cohn, pp. 170-183.

[63]L. Berkowitz cited in Browne and Cohn, pp. 324-337.

[64]R. M. Stodgill, p. 68.

[65]E. P. Hollander and W. B. Webb cited in Browne and Cohn, pp. 404-416.

present study, and so results will not be reviewed in detail here, except as they indicate pertinent dimensions or characteristics of leadership or leaders.

Hollander and Webb's study has been noted above.[66] Roff utilized group judgments sampled by rating scales in studying characteristics of judged high and low success of combat leadership among Air Force officers.[67] Equally important with factors contributing directly to combat performance were the personal characteristics of lack of concern with personal advantage, sincerity and impartiality in discriminating between degrees of success of leadership. These results corroborated results of an earlier study which had indicated these characteristics were the minimum requirement for effective leadership.[68] The agreement between results is significant, because Roff did not feel that his results could safely be projected for other groups since his sample was not randomly selected. The data had been analyzed on the basis of the differences between average ratings of the best and poorest leaders; median item standard deviation--.80 for ratings of the upper group and larger--1.07 for the lower group.[69] These characteristics, as expected logically, were strongly related to the most discriminating scale item which reflected the officer's ease of maintenance of ground discipline--a crucial barometer of the effectiveness of leadership. Roff commends the sociometric rating technique for use in revealing leader traits with expectations that further research of

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[66] M. Roff. cited in Browne and Cohn, pp. 158-169.

[67] Ibid., 168.

[68] Ibid.

[69] Ibid., 167.

the traits would advance understanding of the leadership itself.[70] He is one of the few who use sociometric techniques who acknowledge their limitation as an exploratory probe.

IV. Criteria of Leadership

Peer nominations were one of the four criteria compared by Carter and Nixon with three types of work tasks (intellectual reasoning, clerical, and mechanical assembly.) The remaining three criteria were supervisor's ratings, work task performance rated by obeervers, and extra-curricular activities.[71] While the familiarity of peers may be an essential on which certain types of sociometry are based, other situational aspects may act as contaminants which are masked. The study of Carter and Nixon clearly reveals this. Criterion scores for leadership given their subjects (N=100 high school males) were all indigenous to aspects of their high school life and activities. The relationship of opinions of the subjects held by the school principal and counselor, and by peers, and number of extra-curricular activities participated in are all readily related to and influenced by the general school reputation of the subjects. Further suggestion of these is seen in the result which shows that the fourth criterion, ratings of observers foreign to the school situation, were independent of these three criteria![72]

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[70] Ibid., 168.

[71] L. F. Carter and M. Nixon cited in Browne and Cohn, pp. 170-183.

[72] Ibid., 180.

Carter and Nixon can hardly be said to have come to grips with their evidence when they comment in passing about this relationship of the criteria merely as "something these three criteria have in common,"[73] as if it were an obscure dimension awaiting an elegantly logical and statistical analysis to bare its nature.

The basic question in Carter and Nixon's study concerned the transferability, that is the consistency, of leadership from situation to situation. Rather than a generally successful leadership from time to time regardless of situation, these authors interpreted their results as indicating that this degree of superior leadership is likely demonstrated among "families" of tasks or situation.[74] Thus the demonstrated trend of the former (transferability) is speculatively concluded in terms of the latter families of tasks, but more research is needed, they say. This investigation is an example of the criterion difficulties in leadership studies. The degree of agreement between the different criteria in the assessment of the subjects' leadership potential was shown in correlations ranged from -.25 to +.66. Work-task scores (intellectual, clerical, and mechanical assembly, in that order) (based on experimental observation) showed low correlations with peer nomination scores (r's = .13, -.25, .05) and activity scores (r's = .13, .02, .22), while work task scores and supervisors' ratings yielded higher correlation coefficients.

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[73] Ibid.

[74] Ibid., 181.

(r's = .31, .17, .14 in one school and .45, .27, and .35 in the second school for the intellectual, clerical, and mechanical assembly tasks, respectively.)[75] Feeling they could not point out any particular criterion as being superior to the others used, Carter and Nixon discuss the advantages and disadvantages of the various criterion measures or methods. The discussion leaves the criteria of superior's ratings, peer nominations, and self report of past history, as used here, on the disadvantage side of the ledger, as opposed to a balance of advantages for the leaderless group method of assessment.[76] The disadvantages indicated for this method have been rather well obviated by Bass' method to be discussed here later.

Recalling the discussions of Jenkins and Roff, and the results of Carter and Nixon's report just noted, there is commonly suggested the requirement that ultimate criteria of leadership performance should be related to the method and type of leadership assessment on which predictions are being made. Two studies will be reported which demonstrate this standard--the work of Wherry and Fryer, and that of Wilkins--each dealing with officer candidate training. Several of the usual selection and prediction methods (aptitude tests, biographical data, interview and ratings by superiors) were compared with buddy ratings and nominations and with academic grades on two classes of officer candidates in the Army's Signal Corps at Fort Monmouth, N. J. in 1945.[77] Advocating peer judgments, they sought to compare these two criteria as assessments and predictions of leadership and success in program leading to

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[75] Ibid., 179-180.

[76] Ibid., 182.

[77] R. J. Wherry and D. H. Fryer cited in Browne and Cohn, pp. 204-212.

commissioning. Ratings and nominations each were found to be good predictive measures of leadership and of academic and tactical performance. Nominations exceeded ratings in reliability after four months (+.58 and +.17, respectively), though they predicted stably about equally after only one month of acquaintance in the class (+.75 and +.76, respectively for nominations and ratings). In both instances peer judgments exceeded the reliability of superiors' ratings of the subjects, which averages +.50 after one month and +.23 after four months.[78] Using all selection procedures, it was found that nominations were better predicted than was the more commonly used academic grade criterion. The only exception to the pattern was the prediction of grades from aptitude tests. However, the data otherwise indicate that academic grades and nominations are measures of something quite different in the subjects of this study.[79] Wherry and Fryer thus report that peer judgments exceed most other measures for assessing leadership, and of these, nominations are to be preferred somewhat over graphic ratings on the bases of better reliability, and ease of obtaining.[80]

This finding of Wherry and Fryer can be explained on two bases. Peer judgments seemingly reflect knowledge about the individual functioning (1) as an intimate member of the group and (2) in significant interpersonal dealings with other individual members. The peers have impressions from isolated events as well as global perceptions of others' roles on which they can base

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[78] Ibid., 211.

[79] Ibid.

[80] Ibid., 212.

their assessments of potential leadership. Such assessment is in some respects more valid than the more distant and incidental evaluation by superiors, or evaluations by means of specific test or task performance. The peers can tell whom they would follow willingly and well. That nominations are to be preferred over graphic ratings in part follows from the above explanation. Also, the individual members' spontaneous nominations reflect global impressions of the best leaders. Finally, the nominations method avoids both the pitfalls of judging overt behaviors to assign amounts of reputedly desirable leader-traits and the dubious validity of weight assignments in constructing graphic scales.

In a similar officer candidate screening and training program for Marine Corps officers, use of peer judgments was reported by Wilkins as part of the screening program.[81] Even though peer judgments, and superiors' ratings in training and in field combat performance have that communality of standard for assessment noted above as a requirement, Wilkins concludes his report with an admonition concerning use of the sociometric method of assessing and predicting. In this instance peers and superiors shared common experience and understanding of what would be expected of a subject in the criterion situation--field combat. It appears that the acquaintance of judges with peers and with long-range criterion situation is essential to the suitability and adequacy of sociometric judgments as a predictive device. However, in the short range goal as criterion situation, such as reported by Wherry and Fryer,

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[81] W. A. Wilkins, "Selection of Marine Corps Platoon Leaders." U. S. Armed Forces Medical Journal, V (August 1954), 1184-1191.

the processes of social interaction and judgment may alone be sufficient for such predictions. It should also be noted that the Marine Corps subjects probably had a highly articulate image of what an officer and a field combatant is expected to be. This condition is seldom as true for other types of candidates, applicants and newly entering members in an organization. Also, returning to Wilkins' admonition, it was found that peer ratings had a correlation of .20 (not significant) with respect of others, contrary to logical expectations. Thus, though promising, analysis of the dynamics is essential in all cases, and experimental refinement of the technique in each situation seems advisable.[82]

V. Personality Traits and the Dynamics of Leadership

The introduction to Part III of their volume was the selection of Cowley's early investigation of the traits of face-to-face leaders.[83] Browne and Cohn comment that this early work was included as an unusually good example of traits studies in leadership. Clarity of style in another feature of this article which would benefit current literature if it were (along with the awakened interest in trait studies as noted by the editors) to become fashionable again.

In this very early dated study by Cowley, face-to-face leadership was chosen for study among widely divergent populations: criminals, non-commissioned officers and lower rated enlisted men in the Army, and college students. Cowley asked three questions. First, does a set of psychological tests differentiate leaders from followers on the basis of a constellation of traits

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[82]Ibid., 1190.

[83]W. H. Cowley cited in Browne and Cohn, pp. 227-234.

for each type of leader? Secondly, what traits might become demonstrated? And thirdly, would the test results produce enough evidence to make it possible to call any traits general traits of leadership, i.e., common to all leaders in all situations?[84] His results revealed a constellation of eleven traits for criminal leaders, twelve for non-commissioned officers, and fourteen for student leaders. Six traits were found to be held in common by all three groups of leaders: self confidence, motor impulsion, finality of judgment, and three measures of speed of decision. The generalization which would be indicated by affirmative evidence in answer to the third question was regarded as an impossibility. However, of the six traits common to the three types of leaders studied, all were found to be related to an "undefined general factor which has been discovered by means of the Spearman Two-Factor Analysis."[85]

Cowley's claim was cautious. He saw only six traits as general traits of leadership in the situations studied, (sic-face-to-face, small groups) and in terms of the generality suggested, cited the need for further research. The only speculation he allowed himself was that there was a strong indication that the general trait bears some relationship to finality of judgment and speed of decision.[86] His conclusion was well substantiated from his data. However, this seems to be an instance where method of measurement may strongly influence the identification of the trait. It is noted that over twenty-two

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[84] Ibid., 228.

[85] Ibid., 234.

[86] Ibid., 234.

per cent of the scores on which Cowley's analysis and conclusions were based were speed-of-decision scores, and an additional fifteen per cent were finality-of-judgment scores.[87]

Two other studies of Part II are of interest here. Hollander and Webb specifically investigated the leader-follower positions as opposites of the status continuum in their study of peer nominations. Naval aviation cadets nominated peers as best and least qualified leaders, and also listed selections for desired and undesired followers, and finally preferences for best friends.[88]

Intercorrelations (all significant at .001) of +.92 for leadership-followership, +.47 for leadership-friendship, and +.55 for followership-friendship were reported.[89] From these data the investigators concluded that the peer nomination technique of sociometry has value as the basis for predicting specific performance. It was also noted that there is a need for re-appraisal of the dichotomy of followership and leadership, as noted by others and commented on here above. Followership as a functional component of good leadership is understandably demanded by the complex hierarchies of our social institutions.[90]

Bell and French presented additional evidence of the constancy of leadership status.[91] An average of an individual's status scores was taken as a

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[87] Ibid., 229.

[88] E. P. Hollander and Wilse B. Webb cited in Browne and Cohn, pp. 404-413.

[89] Ibid., 407.

[90] Ibid., 412.

[91] G. B. Bell and R. L. French cited in Browne and Cohn, pp. 244-249.

measure of his success as a leader in discussion groups. Each subject participated in a series of group discussions, problems and membership being systematically varied in each group. Status scores in thirty groups were obtained, and thirty correlations were obtained as a basis for appraising the average consistency of leadership status. An average correlation coefficient of +.75 was yielded from these data, which the authors felt supported their hypothesis that leadership does have consistency from situation to situation for any individual characteristics and not wholly to the situation itself.[92] Acknowledging homogeneity of sample and certain methodological and measurement limitations which may have influenced their data, the authors found sufficient basis to agree with Gibb's unpublished findings to the extent that a re-evaluation of the emphasis upon situational factors in leadership would be required. Though there has been some effort at this type of re-evaluation and emphasis in the research, such as the work of Cattell and Stice, the trait approach is still minimized by the predominant focus on group processes and structure.

This trend to the situational approach is clearly demonstrated, approaching an extreme, in the works selected to constitute the final section of the Browne and Cohn collection. These reports of training problems and methods focus principally on the interaction processes of a human relations frame of reference. The topic of the present investigation does not touch on this area of leadership, per se, and so further review has not been attempted.

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[92] Ibid., 247.

Browne and Cohn's selection of articles for inclusion in their volume was representative of a broad scope of leadership interests. Some articles are reviewed here separately from the survey of the works in Browne and Cohn's The Study of Leadership. The remaining reports in Browne and Cohn have not been reviewed here due to their highly specific type and application (e.g.--concerned with business-executive selection and interpersonal awareness of production-line foremen), or because the design and results of these studies are not comparable or pertinent to the present study. In those studies samples of children in nursery and pre-school settings, summer camps, Boy Scout troops, and certain other remote circumstances were used.

The Browne and Cohn collection has been cited extensively here to draw attention to it as a highly informative and comprehensive source of writings in leadership. Material selected for the book is unique for its breadth of historical, theoretical, methodological, and applied reports on leadership which are meaningfully organized for the reader.

A recurrence of interest in the trait approach is shown in the content and conclusions of Mann's article.[93] Mann's research was addressed to the relationship between the individual's personality characteristics and his performance in the small group. In three general sections Mann presented reported data concerning the possible relationships of personality to

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[93]R. D. Mann, "A review of the relathinships between personality and performance in small groups." Psych. Bull., LVI (July 1959), 241-270.

(a) individual behavior directed toward the individual's goal in the group, to (b) judgment and perception of the individual by his peers, and to (c) the processes whereby an individual is selected or volunteers for positions or roles functioning to solve internal or external problems facing the group.[94]

Mann summarized reported evidence about the relationship between the individual's personality and his group behavior or status. His intention was to take stock of the generally available results and to evaluate them to point up trends, and finally to cite the need and direction for further research.

Though limited to evidence about small groups, Mann's presentation is relevant here because of his critical analysis of the conclusiveness of results concerning the relationship between personality factors and leadership, and particularly due to his comparison of techniques of measurement of leadership status.

Reviewing available reports, Mann used any single result of a study as the unit of his research, and compiled a table summarizing the evident relationships between seven aspects of personality and assessed leadership.[95] The table is repeated here as Table I, presenting the total number of studies and results, and the distribution of the results into the various forms as reported by investigators. It also includes three of Mann's own summary statistics

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[94]Ibid., 241.

[95]Ibid., 245.

showing the total number of results which indicate a direction of a relationship, and the base numbers for the percentages of significant results which indicate a direction of a relationship, and the base numbers for the percentages of significant results which are positive, and those which are significant and positive and in the direction of the over-all trend.

Table I summarizes the data concerning the relationships between the seven factors and leadership. Brief comment on the relationships shown by these data are given here.

Intelligence. There appears to be a positive, highly significant, but low magnitude relationship between leadership and intelligence. (No r is greater than +.50, median r = +.25, p. .01).[96]

Adjustment. Ninety-six per cent of the significant results were in the positive direction for the relationship of leadership and adjustment. (No r greater than +.53, median r close to +.15) Mann regards the evidence as strongly indicative of a positive relationship, though "no single measure of adjustment can be expected to be an efficient predictor of leadership."[97] All techniques of measurement were equally productive of positive results, but the Cattell Sixteen Factor Personality Test was noted as one of the two showing striking evidence of this positive relationship.[98]

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[96] Ibid., 248.

[97] Ibid., 248-249.

[98] Ibid., 248.

Extroversion-introversion. A direct, but tenuous assumption from the titles of the various instruments indicates a positive association (significant at .01) between leadership and measured extroversion-introversion. Selected leaders appear to be more sociable and outgoing. (Highest r = +.42, median r = +.15).[99]

Dominance. Slightly less than three-fourths of the results from twelve studies showed a positive relationship, and only forty-two per cent were both positive and significant. (No r exceeded +.42, median r = +.20). There does not appear to be a strong tendency for dominant or ascendant individuals, as shown on personality scales, to be selected as leaders. Again here, the Sixteen Factor Personality Test (16PF) contributed some of the best evidence, says Mann.[100]

Masculinity-femininity. Significant results were found in only two of the nine studies. Correlations were uniformly low for the relationship between leadership and masculinity-femininity.[101]

Conservatism. Seventeen of the twenty significant results from a total of sixty-two indicated a negative association between leadership and conservatism. The popularly used California F Scale was the principal instrument for these results.[102]

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[99] Ibid., 249.

[100] Ibid., 249.

[101] Ibid., 249.

[102] Ibid., 249-250.

TABLE I

THE RELATIONSHIP BETWEEN PERSONALITY FACTORS AND LEADERSHIP

Personality Factors	No. of Studies	No. of Results	Positive			Negative			Zero ?N.S. (g,h)	Positive		% Sig. & in Dir. of Trend(k)
			Sig. (a)	N.S. (b)	Unt. (c)	Sig. (d)	N.S. (e)	Unt. (f)		% (i)	% Sig. of (j)	
Intelligence	28	196	91	68	14	1	22	0	0	88 (196)	99 (92)	50 (182)
Adjustment	22	164	50	55	14	2	28	0	15	80 (149)	96 (52)	33 (150)
Extroversion	22	119	37	38	6	6	23	3	6	72 (113)	85 (43)	33 (113)
Dominance	12	39	15	9	3	6	4	0	2	73 (37)	71 (21)	42 (36)
Masculinity	9	70	11	37	0	1	19	0	2	71 (68)	92 (12)	16 (68)
Conservatism	17	62	3	18	0	17	21	3	0	38 (62)	15 (20)	29 (59)
Sensitivity	15	101	15	55	3	1	25	0	2	74 (99)	94 (16)	15 (98)

Note: The base numbers for the summary percentages are enclosed in parentheses below the percentages. Base numbers: for (i)-total number of results which indicate direction; for (j) total number of significant results; for (k)-total number of results minus positive positive but untested (c) or negative but untested results (f), depending on direction of trend.

[103]Ibid., 247.

Interpersonal sensitivity. In thirteen out of fifteen studies the results were consistently positive, but without statistical significance. Mann agrees with others in his comments concerning the methodological and conceptual problems remaining in the area of measuring interpersonal sensitivity which vitiate further the low order relationship here.[104]

In summary, Mann's research indicates a positive, significant relationship of intelligence, adjustment and extroversion with leadership. Of the remaining four factors, only conservatism is negatively related to leadership. He cited his data as evidence that these relationships vary with the method of measuring leadership itself.[105]

There is one point which Mann did not make explicit, perhaps in light of the cautions he raised in his concluding summary concerning limitations on the conclusiveness of the review.[106] However, in one sense, it indicates the importance of situation-criteria in assessing leadership.

The table shows remarkably high percentages of positive results for the relationship of leadership to intelligence assessed by peer and observer ratings, and for leadership to adjustment assessed by peer ratings. But what should be noted is the consistency of percentages of positive results for the relationship between leadership and all three personality factors when measured by criterion measures. The data of the table indicate that relying on

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[104] Ibid., 250-251.

[105] Ibid., 252.

[106] Ibid., 264.

one set of measures (situation criteria) of the leadership-personality relationships as opposed to extraneous criteria introduced into the situation (peers and observers) the relationships may be more reliably demonstrated. That is, with situation criterion measures a more consistent measure of the leadership-personality factors relationship is likely. Table II shows the variability of the factors due to technique of measuring leadership.

TABLE II

THE RELATIONSHIP BETWEEN PERSONALITY FACTORS AND LEADERSHIP USING THREE DIFFERENT TECHNIQUES OF MEASURING LEADERSHIP

	Percentage of results Positive		
	Peer Ratings	Criterion Measures	Observer Ratings
Intelligence	91 (66)[a]	85 (40)	89 (69)
Adjustment	97 (31)	76 (87)	76 (41)
Extroversion	50 (30)	86 (58)	70 (35)

[a]Base numbers for the percentages are shown in parentheses.
[b]Table taken from Mann.[107]

[107]Ibid., 252.

These three personality factors shown in Table II remain positively related to leadership status under varying conditions of research, the difference being a matter of degree and in many instances slight.[108] This strongly suggests an inter-relationship of these three factors and leadership. The average percentage of positive results for the relationship of these three and leadership is higher with criterion measures (82 per cent) of the relationship than with peer (79 per cent) or observer ratings (78 per cent). Criterion techniques, though problematic in some situations, appear to be somewhat less variable in regard to assessment of these relationships, at least in investigations which are concerned with leadership per se and not with interaction processes and sociometric demonstrations.

In his final summary there is a second important pattern of relationships which suggests that, for leadership per se, small group investigations which rely heavily on identification and assessment of informal types of leadership leave much to be desired. In the small group studies he surveyed, it appears that leadership and popularity are each positively associated with five of the seven aspects of personality--intelligence, adjustment, extroversion, masculinity, and interpersonal sensitivity.[109] For dominance, leadership is said to be positively associated, but the evidence of relationship with popularity is contradictory, though there is a positive trend. Conservatism is negatively related to leadership, but positively to popularity. This degree of consistency

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[108] Ibid., 264.

[109] Ibid., 264-265.

of relationship of leadership and popularity with other factors in small group situations raises some question as to the distinction, from study to study, between popularity and emergent or informal leadership in small groups. It would be courting logical fallacy to speculate an identity between these two concepts based on their common association with a third. But it would be as erroneous not to acknowledge the possible lack of distinction of the two factors. Fiedler's evidence clearly shows that the formal leader of effective groups is more typically unconcerned about interpersonal relationships and the feelings of others, such as those on which popularity might depend.[110]

The point is that leadership--formal, in large groups, and measured by criterion techniques--can be expected to be relatively more independent of situationally variable interpersonal relationships and sociometric patterns or measures. Admittedly, formal, appointed leader status and the effectiveness of behavior in that position is only one form of the accepted definitions of leadership or types of leaders. But for clarity of interpretation of findings from various studies, when the criteria involve or are subject to tangential influence of social popularity, this influence must be taken into account. Perhaps if leadership were defined in the traditional sense of the authoritative, formal, appointed, or office holding leader, and if those individuals demonstrating distinction of achievement, restricted interpersonal persuasiveness. and known as the "doers" among small work groups were identified by

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[110]F. E. Fiedler, Leader Attitudes and Group Effectiveness, (Urbana, Ill. 1958), p. 43.

another term, the research in leadership would be less hampered. In view of findings concerning the emergent leader, such as reported by Carter, Haythorn, Shriver and Lanzetta depicting the emergent leader in work-task groups as energetic, aggressive, seeking acceptance of self (popularity?) and his ideas,[111] it might be more appropriate to call these focal individuals in small groups pushers or persuaders as opposed to leaders. Then the study of leaders could be conducted on a more delimited and clearly defined concept with some continuity from situation to situation. Such an approach would be expected to augment the magnitude and significance of some of the trait relationships with leadership such as Mann analyzed. However, to take a position adamantly regarding either side of the issue at this time is to argue the trait-situation controversy which Bass has recently termed only a pseudo-problem.[112]

Perhaps Bass's dismissal is accurate. Mann interestingly reported that the differences between the percentages of positive results in experimental and natural groups did not exceed four per cent. "Apparently the way these three aspects of personality (sic--intelligence, adjustment, and extroversion) relate to leadership status does not vary as a result of studying either experimental or natural groups."[113] One aspect of the present study is to question whether there is a difference such as this between experimental or artificial groups and natural groups as to leaders who are effective. This

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[111]Browne and Cohn, p. 107.

[112]B. M. Bass. Leadership, p. 17.

[113]Mann, 263.

contrast of groups might appropriately be evaluated in terms of the distinctions between group types and the way they function, as proposed by Lorge, et al., who described such types as traditioned groups, ad hoc groups, climatized groups, and others.[114] Those writers indicated the internal workings of the group and their results vary considerably. If Mann's comment is to be accepted, then these workings have little effect on the results in general, and thus are a matter of concern only to the investigator of small group processes.

Mann's research of the results pertaining to personality factors as related to leadership has reaffirmed the trends in relationships of personality factors or traits and pointed to some investigative conditions and methods of measurement pertinent to leadership status. He honestly and in detail underlined the cautions with which his findings are presented and to be interpreted. He reiterates that he has examined only the direction of various associations between personality characteristics and measures of behavior or status. Only occasionally was there any basis reported for estimating the magnitude of the relationships cited. In the pattern of correlations of the low order which Mann reported (median r for personality characteristic(s) and performance = +25 at the highest, with most median r's closer to +.15)[115] pooling of certain results could mask substantial relationships.[116] However, Mann's suggestion of

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[114]Lorge, I. and H. Solomon. Individual performance and group performance in problem solving related to group size and previous exposure to the problem. J. Psychol., XLVIII (July 1959), 107-114.

[115]Mann, 266.

[116]Ibid., 264.

placing his finding in the perspective of a point of departure for future research, implying that the field of traits in leadership has not been fully tilled, echoes the mode of thought of Cattell and Stice who suggested that such evidence needs further and more careful analysis, rather than being abandoned.[117]

VI. A Theory of Leadership

Before reviewing the basic experimental work in developing the measures of leadership intended for use in the present study, an attempt will be made to present B. M. Bass' theory of leadership, and to relate it to the subjects and conditions of the present study.

Bass first outlined his theory of leadership in a report in 1955, and has since elaborated on it, including testing postulates, and relating it to current development of research in leadership.[118] He first contended that a sounder theory of leadership might be possible if it were stated in terms of general psychology, rather than the specifics of social psychology. He then presented assumptions and postulates within the framework of the psychology of perception, of learning, and of motivation. The following outlines his theory.

Leadership occurs only in a group, which is a drive-reducing aggregate of individuals. Invoking the law of effect, to groups are attributed effectiveness (the degree to which groups are drive-reducing for members) and potency

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[117]R. B. Cattell and G. F. Stice, "Four formulae for selecting leaders on the basis of personality." Hum. Relat. VII (November, 1954), 494.

[118]B. M. Bass, "Outline of a theory of leadership and group behavior." Tech. Rep. 1, Contract N7ONR 35609, Louisiana State University, Baton Rouge, April, 1955.

the strength of drives which may be reduced by this specific membership). Extrinsic effectiveness, being reflected mainly in group activity and processes and only indirectly in members' drive reduction, is of the greatest pertinence for the topic of the present study. Group goals are the reference point by which Bass defined member status, esteem, and control. Leadership is said to occur when one member of a group, A, behaves in a way directed toward changing another member, B's, behavior."[119] B's behavior changes may occur in respect to modifying the strength and direction of his drives, or in modification of his perceptions, cognition and ability to respond. When attempted, these modifications (i.e. leadership) will be either successful or aborted, and if successful, will be regarded either as effective or ineffective. "Successful leadership occurs when B's change as desired by A is drive reducing to B."[120] The criterion of effective leadership is whether or not B's drives are reduced, i.e., if the leader can make him like changing his behavior. Other important concepts Bass described included the dichotomies of coercive vs. persuasive leadership and task-vs. self-oriented membership.

Again, this is work mainly about small and/or informal groups. Nevertheless, the general nature of the theorems and postulates allows inferences applicable to the natural groups of formal structure and appointed leadership such as the subjects of this study reported here routinely function.

Concerning the transfer of leadership potential from situation to situation, Bass stated that when problems are similar in two situations, the more

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[119] Ibid., 3.

[120] Ibid.

effective a member's leadership in the old situation, the more likely it is that his leadership acts will be effective in the new situation. Also the more ability (capacity, knowledge, and various personality characteristics such as perceptual flexibility and initiative) to solve a group's problems, the more effective are a member's leadership acts. It also follows, according to Bass, that attempts to lead in the new situation will follow leadership success in the old the more similarity there is between the old and new situations.[121] The converse is assumed. This system of postulates seems to be founded in the concepts of reinforcement and the law of effect. Such anchoring of leadership concepts in general psychological laws and concepts facilitates both design and interpretation of results.

In addition, Bass' statements regarding ability, as described by him, and the continuity of leadership effectiveness from one situation to the next are suggestive of the underlying trend on which are based some trait theorizing and measurements. For the study here it would seem then that effectiveness of the subjects in their leadership roles, which are repeated in a more or less standardized situation, should get better if they have the basic potentiality or ability to solve the particular group problems arising. Conversely effectiveness should become poorer, or relatively so, if an individual does not have the required ability.

Bass also points out how the individual's and the group's knowledge of former success or failure will influence his subsequent effectiveness and success as a leader. This postulate would not be expected to apply in the

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[121] Ibid., 6.

setting from which come the leaders being studied here. The difference is that the leader is the only one repeating the same or similar situation, whereas his subordinate members experience this type of group and its situational problems only once. They thus look to the appointed leader for direction and the necessary organization to attain satisfying effectiveness. Again, the constancy of the individual and his traits from situation to situation (recruit company after recruit company) is expected to be predictable from assessment of those traits or characteristics.

Bass theorizes that a much greater degree of development and transfer will be associated with interaction effective leadership than with goal effective leadership.[122] Again, his notion applies best to the small, informal group. However, the corollary to such a theoretical statement follows if the same individual continues in the leader-role for a series of several groups. That is, for the formal, structured, hierarchy type of group-leader relationship, it is more likely that goal-effective leadership will be more readily and greatly developed; and when developed, such leadership is more likely to be transferred from group to group as effective leadership than would be interaction-effective leadership. This argument is in terms of the specific situation which is the setting for the present study. However, in terms of general theorizing, neither Bass' nor this point of view seem as adequate as a regard of these two forms of effective leadership as complementary.

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[122] Ibid., 8.

The author of this leadership theory is less one-sided in his analysis of persuasive vs. coercive leadership. The former appears based on ability alone, whereas the latter is based on control alone.[123] The high-control leader, with ability, may come to depend on his ability and not his control to attain effectiveness. When high control is associated with successful leadership, the effectiveness of this leadership is said to be only extrinsic. In the formal, hierarchically structured group that is goal-oriented or has a goal-effective leader, it would seem that extrinsic effectiveness would be sufficient to serve the needs and aims of the group. When this success becomes habitual in a group (sic--or a leader!) it then takes on intrinsic characteristics. Intrinsic characteristics of leaders repeating their roles would then be predictable by means of some individual differences measures. Such a prediction was attempted in the present study.

Bass further theorized about the interdependence of esteem, status, and ability in contributing to successful and effective leadership. Convergence of the esteem and status hierarchies must be maintained in the formal, appointed-leader groups to minimize abortive attempts at leadership and avoid conflict, indecision, and confusion.[124] Applying this to the large groups, in agreement with Bass, it can be said that status or esteem, via control, leads to successful leadership, and ability leads to successful and effective leadership. If the former are placed in the hands of an inept appointed leader, the group is less likely to be effective.[125] It also follows that the larger and

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[123] Ibid.

[124] Ibid., 10.

[125] Ibid., 11.

less intimate group must have a high status differentiation and coercive leadership (i.e., authoritative) or its effectiveness will be vitiated.

Summarizing certain features of Bass' theory, this writer has taken some liberty with some of his generalization and postulates in order to extend them to the sample of subjects and conditions of the present study. Issue has been taken also with some minor points of his presentation which seem oriented to a specific situation, the small group. This orientation was justified by Bass in his concluding remarks wherein he indicated that small group investigation techniques had been designed for the theorems and hypotheses. It has been attempted here to focus his generalizations on a single situation for further accounting of both his technique of measuring leadership and the merit of his theory where applicable to other than the laboratory group and its phenomenon of leadership, usually emergent in type.

VII. Experimental Derivation of Leadership Indices Used in This Study

In this review the next consideration will be given to the reports by B. M. Bass, F. E. Fiedler and R. B. Cattell of their experiments. Those reports show the development of the method and instruments for their proposals of leadership assessment.

VII-A. Lambda - An Index of Influence on Others

To test some of his hypotheses, Bass devised an "objective measure" of leadership and used it to show the potential of leaders' effectiveness. He intended to study leadership effectiveness through precise, repeatable and objective operations. He noted situational tests for selection of military

leaders were reportedly quite reliable (r = +.46).[126] He had concluded from reviewing validity studies that success as a leader in restricted, artificial brief situations correlated highly with leadership performance of the same persons in real-life situations.[127] Such an inclination to generalize from small-group experimental results to leadership in other real situations is frequently noted, and perhaps may be assumed to be done validly considering such observations as Mann's concerning the minimal difference in positive results between large and small groups. However, only when efforts have been made to validate this application through controlled study in the situation where use of the method is contemplated are such generalizations warranted.

The aim, in part, of the proposed study was for this type of validation.

Bass found the basis for the measurement method he proposed in the several studies by Jennings, Asch, and Sherif who recorded changes in judgments as an index of the influence of a leader.[128] Timmons was apparently the first to have used the differences in correlations among ranked judgments to quantify the effects of group influence. This method was subsequently used by Preston and Heintz, by Hare, and finally by Talland, according to Bass. Talland's investigations correlated initial judgments and group decisions with final leadership assessments.[129]

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[126]B. M. Bass, "An Approach to the Objective Assessment of Successful Leadership." In Objective Approaches to Personality Assessment, pp. 155.

[127]Ibid., 154.

[128]Ibid., 155.

[129]Ibid., 155.

Bass first reported a standardized method which yielded three measures of successful leadership--public, private, and relative--derived from the correlations between members' opinions before and after discussion, and reflecting how much an individual's judgments influenced, or were influenced by, others and by the interaction during discussion. In a later report Bass presented a method for calculating an index of the change in agreement among judges' rankings in two independent rankings made and suggested that the index reflects social influence.[130] This index appears to be fairly reliable and not too cumbersome as an index of successful leadership (N = 350, split-half reliability +.48 and +.29 for highly motivated subjects, and +.61 and +.64 for those of lower motivation). The index, lambda, is produced in the form of deviations from the group mean, facilitating examination of individual performance independent of differences between groups.[131]

Bass claims these measures of leadership support his basic theory. Reflecting influence as it does, the relative measure of success was more highly and significantly correlated with the criteria than the absolute measures (public and private). This finding is in accord with previously noted comments that effective leadership must be considered in terms of interpersonal interaction and of the various group conditions (task, structure, interaction) operant in the situation. Assessed successful leadership was found related to ability to solve the group's problems, to esteem for the leader, to observed or

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[130] B. M. Bass, "Measures of influence and change in agreement of rankings by a group of judges." Sociometry, XXIII (June 1960), 195-202.

[131] Ibid., 196.

exhibited leadership, and to attempts at leadership.[132] These intragroup phenomenon and processes support Bass' theory of leadership. They are not direct evidence for transfer of the leadership or the use of the measures to the "real" situation, but some relationship can be seen by logical inference.

Bass' subjects were 255 ROTC cadets assigned to fifty-one groups, ostensibly as a screen test for entrance into advanced training in the ROTC. A control group of ninety-five night school college students, with no extrinsic motivation to perform well, was also tested in this work-team situation. Higher reliabilities (all significant at the .01 level) were found for the three leadership measurements, public, private and relative, among subjects with lower extrinsic motivation. (r = +.52 to +.75 for low motivation subjects, +.29 to +.50 for medium and high motivation subjects).[133] For the measure of relative successful leadership, corrected split-half reliabilities of leadership as a function of motivation were as follows: for high motivation, r = +.48, N = 135; for medium motivation, r = +.29, N = 60; for low motivation, r = +.61, N = 60, and the control low motivation group, r = +.64, N = 95.[134] Ten problems had been administered to each group.

Bass regarded the construct validity of the measures as acceptable on the basis of the data. Further analyses also indicated that: (a) more successful leadership was exhibited as problems grew more difficult; (b) early agreement

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[132]Bass and Berg, p. 162.

[133]Ibid., 157

[134]Ibid.

on who shall lead is important to the group's effectiveness; and (c) increased group effectiveness is positively related to successful leadership.[135]

Most of the relationships were demonstrated by correlations of low to moderate order, and many were so low as to be disregarded normally. Yet all are positive and statistically significant, suggesting additional merit to Bass' method for research purposes than mere simplicity and facility, factors by which he recommended the lambda index.[136] The tendency to ignore such low but suggestive relationships where found has been said to contribute to a considerable portion of the cause of the general failure of leadership researchers in establishing good theoretical generalizations or methods for practical application.[137] This observation by Cattell and by Mann has been discussed before.

Some of Bass' criteria, based on sociometric interaction, were so intrinsic to the experimental procedure and population that reliability and control seem suspect. Also, his subjects' desire to enter advanced ROTC would seem to confound the emergence of leadership, which experimentally should depend mainly on the situational-experimental (group interaction) processes. The inclination to work for group goals, if they were suggested either implicitly or explicitly, is not likely to be elicited at full strength among a group of more or less acquainted college males competing in a status situation to qualify for acceptance in a program for which they are all assumed to be motivated. Under such conditions, motivation concerning group goals can hardly be considered to

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[135] Ibid., 162.

[136] Ibid., 163.

[137] Ibid.

exceed the individual's investment in his own goals. That Bass' lambda is objective seems substantially indicated--that it measures leadership reliably remains to be seen.

Bass' measure of relative success as a leader has these merits: simplicity and objectivity, continuous scores relating immediately to a leadership theory, and the measure is repeated (as each trial or problem is a short, self-contained sample of behavior). In the study to be reported here the previously noted confinement of Bass' original method of calculating the index was used to assess the relative influence of each group member upon the other members. This measure, lambda, will be regarded as an expression of the particular conception of leadership as influence functioning in the work team situation.

VII-B. ASo - Measurement of Attitudes of Leaders of Effective Groups

F. E. Fiedler's extensive investigation,[138] in contrast to work of Bass and Cattell in the artificial group situation, was addressed to natural, job reality circumstances, though all three investigators worked with relatively small groups. Fiedler's groups were characterized by a range of formality from the informal to the more formally structured in terms of leader status or position. The criterion of leader effectiveness for all groups was the group's achievement or productivity. The underlying processes of leader-group relationships were approached through measuring actual and perceived similarity and difference in the personality traits of the team members, and also, through investigation of the relative influence on group interaction these perceptions

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[138]F. E. Fiedler, Leader Attitudes and Group Effectiveness.

by team members (particularly of influential members) had. Various natural groups were studied. They all were established as groups apart from the research and for their own purposes, thus providing objective performance scores as criteria. Groups' members were relatively well motivated concerning the goals of their groups. Within groups the relationships of interpersonal perceptions, some sociometry, and criteria of group productivity were analyzed. Groups studied included high school basketball teams, student surveying parties, Army and Navy ROTC cadets, small crews manning Air Force bombers and similarly small crews assigned to Army tanks, furnace crews in open-hearth steel manufacturing mills, and finally the complex administrative groups in one hundred member companies of a state-wide federation of farm supply cooperatives. Perceived similarity (or dissimilarity) between two hypothetical or real other persons emerged as the most fruitful, independent variable in the research. Fiedler developed a method for obtaining a score (ASo) which purported to measure the perceived difference or psychological distance (D) between the two actual or hypothetical other persons, one of whom was favorably regarded or "preferred" and the other unfavorably or "nonpreferred" as a co-worker, team member, or a similar group associate. Each subject was asked to describe, through use of a given test or rating scale, the best co-worker he ever had, and the person with whom he has or had the most difficulty in getting things done. A comparison of these "opposites" on the subjects' co-worker preference continuum defines the perceived distance, indicated by the ASo score (Assumed Similarity of opposites).[139]

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[139] Ibid., 22.

After trying out Q blocks, unforced scales and two forms of adjective scales, Fiedler settled on a semantic differential type of the adjective scale as the test form proving most effective, reliable, and simply handled for administration and scoring and for machine processing of data.[140]

The computation of Assumed Similarity scores or of D scores in general, is relatively simple. To obtain D requires very few operations: namely obtaining the difference between corresponding responses to scale items, and squaring, and then summing the D^2. Obtaining the square root of the sum of D^2, resulting in a D, makes the distribution of scores nearly normal. The larger the D score, that is, the Assumed Difference, the lower will be the Assumed Similarity score. Unless specifically kept in mind, this inversion may cause confusion.[141]

A low ASo score, indicating greater dissimilarity between the two hypothetical "others", was attained most frequently by the leaders of successful and productive groups, and supported well the traditional contention that a good leader maintains a certain psychological distance from his group members or subordinates. However, this pattern was noted in some instances to be inconsistent for leaders of different, but all relatively effective groups. Fiedler concluded that ASo scores by themselves did not predict good teamwork, according to these results.[142] That special cases exist for this relationship was demonstrated by intense analyses of the bomber and tank small crews' sociometric

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[140] Ibid., 9-17.

[141] Ibid., 16-17.

[142] Ibid., 45.

structure. Fiedler interpreted multiple correlations of the interaction between ASo and leader acceptance of the keyman as indicating that " . . . the accepted leader who maintains a moderate psychological distance from his keyman is able to get better performance than a leader who is too distant, therefore, probably losing contact with his keyman, or too close, thereby becoming emotionally involved with him."[143] In spite of these internal processes, the primary hypothesis remained acceptable to Fiedler: good leaders interpose greater psychological distance between themselves and their coworkers than do poor leaders. Fiedler interprets ASo score as a measure of a general psychological distance.[144] Behavioral differences related to high and low ASo scores have not been determined, however. Fiedler states: "It is our clinical impression, as well as of others who have worked with this score, that the individual with low ASo tends to be more businesslike, extrapunitive, and "hard headed" in his approach to his associates."[145] ASo probably measures attitudes below the level of awareness as contrasted to sociometric choices which seemingly are more related to conscious level psychological distance.

Attempts to anchor the meaning of the ASo score in general psychological theory were not successful, according to Fiedler. He cited unpublished research in the relationships of the Assumed Similarity scores with other common tests--particularly the subscales of the Thurstone and Guilford Inventories,

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[143] Ibid., 31-32.

[144] Ibid., 22.

[145] Ibid., 43.

Cattell's 16PF test, the Minnesota Multiphasic Personality Inventory and the F Scale, as well as with some leadership ratings. He characterizes the results as "singularly unsuccessful," with significant relations not confirmed on validation attempts.[146] The suggestion seen in such results is that ASo scores are chance variables is obviated by the reliability scores and their relation to external criteria. He also cites evidence to refute the explanation of Assumed Similarity scores on a situational basis.[147]

Evidence of the interpretive significance of the Assumed Similarity score is cited by Fiedler from various studies. Jackson and Carr compared a group of normal persons with schizophrenic patients on the basis of their ASo scores. The normals showed higher Assumed Similarity than did the patient group based on predictions of the responses (presumed to mean responses on the Assumed Similarity scale), and these results were interpreted as supporting the impression that the discrepancy between predicted response of others and one's self-description reflects a degree of feeling of warmth and closeness.[148] Stenier's results from a study based on the general design of Asch's investigating conformity indicated that the low ASo person tends to be self sufficient and unconcerned about the effect which his disagreements might have on the

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[146] Ibid., 17.

[147] Ibid.

[148] Ibid., 45.

feelings of others, and to be distant and businesslike (corroborated by others), whereas the high ASo person is significantly more influenced by actions and responses of others.[149]

A similar impression of characteristic interpersonal relations patterns was found among eight outstanding Naval ROTC cadets, four of whom had high ASo and four had low ASo scores. Superiors' descriptions showed the high ASo scorers as getting along well with people, and interested in maintaining friendly relations with others, while the low ASo scorer was rated as being antagonistic toward others and not interested in friendly relationships. This repeats the depiction of the low ASo scorer, as a leader, emerging as a typically distant, emotionally detached person.[150]

Cronbach's suggestion that ASo scores should be analyzed into their component variances was tested by the research of Peters cited by Fiedler. The evidence was consistent with previous findings that the greatest proportion of variance in ASo scores is due to the rating of the subject's least preferred co-worker, and it was also indicated that ASo as used by Fiedler appears to be a better predictor than the several components. No data from this unpublished research were presented.[151]

In further comments on the nature of the ASo Fiedler reiterates its dependence on other sociometric measures for prediction in certain situations.

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[149] Ibid., 21.

[150] Ibid.

[151] Ibid., 21-22.

Also, in ASo data, it seems one is dealing with a response set, nearly complete in its independence of item content. Some have questioned such independence (Cronbach[152] and Bronfenbrenner[153]) as well as the adequacy of expressions of interpersonal perceptions which involve this set. Cronbach's suggestions have not been fruitful, as noted above. The only alternative he offered was that of an extreme mathematical elegance which appeared laborious, involved, and somewhat unrealistic in view of the evidence. Bronfenbrenner's criticisms concern the prediction of another's responses, a prediction which ASo as most generally used by Fiedler and as was used in this study, does not depend on or utilize. Here ASo is only a judgment of the person, the subject's attitude toward him, not a guess of the other person's attitudes. It seems more parsimonious to accept such a response set for what it is, with its demonstrated relationships. Response sets have been used to advantage.[154, 155, 156]

The preponderance of Fiedler's evidence indicated that ASo is somehow related to effective leadership. With the above-noted qualifications regarding

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[152]L. J. Cronbach, cited in Person, Perception, and Interpersonal Behavior, R. Tagiuri and L. Petrullo, eds. Stanford, Cal. 1958, pp. 353-379.

[153]Bronfenbrenner, cited in Tagiuri and Petrullo, pp. 110-130.

[154]A. L. Edwards, The Social Desirability Variable in Personality Assessment and Research. (New York 1957)

[155]E. H. Barnes, "The relationship of biased test responses to psychopathology," J. abn. soc. Psychol. LI (September 1955), pp. 286-290.

[156]I. A. Berg, in Bass and Berg, pp. 83-99.

sociometric structure and task nature, this relationship can be specified for small groups of particular types and concerned with designated task processes. It remains to be seen if this measure can be applied to the assessment of effectiveness of leadership in large groups, and, as proposed for this study, groups with relatively high specification as to nature, structure, organization climate and task and in which the appointed leaders' formal role and task are clearly defined and familiar to him.

It is clear that low ASo is related to some quality, characteristic, attitude or attribute which serves the function and aim of leadership in many circumstances. On this basis, apparently, Fiedler feels justified in his rather definite assertion that ASo can serve as a useful predictive device for potential leaders who are otherwise qualified for their job.[157] This is yet to be investigated and the proposed study is intended as an exploration of such a use of the ASo score. The relationship between ASo scores and objectively measured success of group performance was expected to prove to be a valid predictive device to aid in the selection and training of leaders.

VII-C. 1 - A Sequential Equation for Predicting Leadership

Taking a specifically different approach to the measurement of leadership, Cattell and Stice pointed out the general lack of success in leadership studies that have been reported arises from the "lack of meaningfulness, validity and relevance in the personality measurements themselves, from failure to use sound operational definitions of a leader" and as noted before, the tendency to

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[157]Fiedler, p. 45.

ignore low but suggestive relationships.[158] Selecting total group performance as a criterion of leadership Cattell and Stice used the Sixteen Personality Factors test to search for personality traits associated with leadership demonstrated in certain standardized situations. Four types of leaders were identified by observers and sociometric means--problem solvers, and salient, popular or sociometric, and elected leaders. Experimental data were yielded from studies of thirty-four groups of ten young men each. Groups met in sessions of three hours each. They were given pretense tasks of construction problems, committee meetings, jury-like decision reaching, code problem solving, and a discussion of questions, and so on to gain forty-four distinct performance measurements. Comparisons of the personality trait profiles of leaders and non-leaders in each of the four criteria were made. Eight factors showed differences in the same direction for all four criteria, significant differences (at the .05 and .01 levels) were found for four factors (character integration, freedom from anxiety, shrewdness or adventurousness, and deliberate will control). Emotional maturity, dominance, shrewdness and composure also tended to discriminate leaders on the basis of profile differences. Significant critical ratios indicated that the greatest resemblance was between salient and sociometric leaders and the least between sociometric and elected leaders. From the differences of the mean scores on all of the sixteen factors and for all criteria of leadership bi-serial correlations were computed, and optimum factor patterns were then expressed in a specification equation. This type of equation, stated the authors, not only gives the maximum prediction of the

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[158]R. B. Cattell and G. F. Stice, p. 494.

criterion through using all the factor measures at once, but it also shows psychologically how the various factors act in producing the required criterion performance, so that they can thereafter be used with insight. That is, a particular specification equation score may be attained by various combinations of factors, but the end result is what counts. In this way, this result takes into account the total integration of the personality and allows for individual differences--an advantage which occupational profile comparisons, and some types of interviews in selection, do not readily take into account.

The "rather potent specification equation"[159] accounts for eighty-two per cent of the variance of the criterion and gives a multiple correlation of +.91. This method, as it stands, claim Cattell and Stice, "appears to be the highest prediction of leadership that we have encountered in the literature."[160] Still, "as it stands" is restricted to leadership emerging in small groups and assessed by observers or designated by sociometric or popular, open elections choices.

In this study Cattell and Stice's derivation of the specification equation is followed--that is, compute correlations for each of the sixteen factors with the criterion, obtain weights, and use them in the formula to assess any relationship of the traits to measured leadership. This would be the application of the equation to predict leadership in large (versus small) groups and would be an attempt to make the comparison of the measure with the entire continuum of

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[159] Ibid., p. 504

[160] Ibid.

success, as noted to be of interest in reviews of the use of the 16PF test.

A summary and assessment of the reviewed research in leadership will point to the apparent current status of the issues, particularly in relation to the problems investigated in this study.

The persistent problems which hamper the further understanding of leadership are those regarding methods of assessment and identification of leadership, criteria for the various situations in which leadership is studied, and an acceptable working definition of leadership.

The weight of research evidence indicates that leaders and leadership are specified in and by the situation. With the limited understanding of leadership which we have, operational definitions, limited by the situation appear acceptable if not advisable. From the variety of research designs extant, no single working definition of leadership seems practical. However, for general application, attention is directed to the merit of two essentials for such a definition: the interpersonal processes, and a reference to the criterion of leadership. Bass' interaction influence definition, with its implicit statement of a goal, seems to meet these specifications.

Two writers here suggested that direct observation and biographical and case history data are the most fruitful aids toward understanding leadership. We would question if understanding is represented in identifying such characteristics as superiority of physical factors, age, education and intelligence, certain socioeconomic factors, and particularly task-pertinent skills. The relationship between leadership and such general characteristics, as well as those of leadership to personality factors (such as adjustment, extroversion, dominance, conservatism, and sensitivity show a fairly consistent positive trend

We would suggest that, at most, these factors be regarded as essentials, but not sufficient causes of leadership. But with low order correlations for their relationship to leadership even that statement remains to be satisfactorily demonstrated.

However, the low order of correlations between such traits and leadership is attributed in part to lack of consistent definition and measurement techniques. This explanation intimates that there is a suspicion of a greater relationship between traits and leadership than has been successfully demonstrated. The reasoning, then, is that improvement in these respects, through empirical methods, may reveal these relationships sufficiently to enhance our understanding of leadership and provide adequate bases for selection of leaders. This remains to be seen.

Somewhat middle-of-the-road in the situation-trait controversy about leadership are the sociometric methods of assessing and predicting leadership performance. Ratings and nominations have been widely used, and used with perhaps the most significant and impressive success in predicting some forms of leadership performance. Though widely used and favorably reported, there are shortcomings in the sociometric method for leadership investigations. In general, sociometric methods depend on an existing group; and these methods have yielded strongest evidence when both subjects and raters are familiar with and/or experienced in the criteria against which the predictions are made. Quite typically, the reported evidence has been based on proximate goals (e.g., successful completion of training, or similar competitive achievement) more often than on long range performance, though it must be acknowledged that the method has been similarly successful in some instances of remote criteria.

There is interesting evidence of the influence of social "popularity" on sociometric methods. Popularity is clearly associated with leadership assessed in small groups, but there also is evidence that popularity is just as clearly denied to have influence on sociometric methods involving peers in large groups. This is an example of the contrast of conditions in large and small groups. Though group sizes are often said to be an important factor, one reviewer found that in experimental groups, generally small in size, and natural groups, in every case larger than experimental groups, the differences between the percentages of positive results for factors related to leadership do not exceed four per cent.[161]

The predominance of current research on leadership is in small groups. This writer suggests that the great extent of current small-group leadership research only yields more, and often redundant, evidence about the structure and processes of small groups than it contributes to an understanding of leadership or to an explication of solid bases for selecting leaders. The exception to this is, of course, the indicated importance of interpersonal sensitivity and situational awareness in successful leadership--but this can hardly be considered a contribution or conclusion exclusive to small-group research. The importance of these processes is common to the dynamics of almost any multiperson situation, be it actually designated as a group *per se* or not. The prevalent leader training sponsored by the social and behavioral sciences also focusses on small group situations.

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[161] Mann, p. 263.

It is acknowledged that the situation has much influence on the processes and functions of leadership. There must be a group situation, and there must be a goal for leadership to occur. From these conditions, interpersonal actions relationships, and influence follow, as well as some degree of achievement of the goal.

One trend in the literature looks to the interpersonal interaction, group structure, and situational characteristics in an effort to further understand leadership and leaders. This may fit in well with sociometric methods. In fact, it has been suggested that sociometric methods be used as a point of departure for further analyses of the phenomenon of leadership. (This suggestion arose from sociometry evidence other than peer judgments, however.) Such an extension for research seems to have much promise. However, there is also a somewhat different tack involved.

It is asserted repeatedly that the leader appears to be a responsible individual manifesting interpersonal sensitivity and particular awareness of the needs and motives of the group and its individual members, their mutual and individual goals, and the structure of the situation. This couples neatly with the somewhat less frequently cited conclusion that superior general or technical competence or knowledge pertinent to the leader-tasks and group-tasks themselves are apparently essential to the leader's effectiveness. This thinking agrees also with the hypothesis of the investigators who cited families of tasks associated with the individual's success as leader.

It seems that under certain circumstances the conditions of leadership which depend upon the situation can be satisfactorily controlled. Such

circumstances would include the known operational characteristics (vice psychological or psychodynamic paremeters), a leadership criterion expressed in terms of an accurate, objective measure of the group-goal achievement, and a series of trials of leadership in this setting practical to observe. Then other aspects of leadership can be adequately investigated. This is the potential merit of large-group, formal leadership investigations. Certain military groups have been recognized as providing this type of condition for leadership research.

The situational analyses and interpersonal sensitivity approach to leadership in some respects has promise. However, to this writer is seems far afield from the traditional notion of the formal leader. This is not meant to deny in any way the importance of interpersonal relationships and dynamics. It is recalled that little likelihood is seen for realizing soon such promise from the situational and interpersonal approaches to leadership, particularly leadership as it may occur in large, business-like formally structured groups. The principal obstacle is the limited knowledge available at this time concerning the parameters of group processes. The available methods of psychology seem best suited to an approach to large group leadership through characteristics of the leader and his performance.

As noted above in this summary, Bass' proposals account for both the interaction and goal factors in leadership. He also has devised a measure of the interaction though only demonstrated for use in small groups. Fiedler's semantic differential approach to interpersonal attitudes also takes into account this interpersonal aspect, but he further accounts also for a criterion in terms of group goal or achievement. Cattell and Stice presented an empirical

approach to the configuration of personality traits associated with leadership (acknowledging no single trait of leadership has been found). These investigators have presented three methods of assessment of leadership potential, with a predictive point of view.

Thus, in the specified regard for a problem of leadership identification and prediction, extra-individual conditions of the situation which influence leadership must be either constant or controlled. The other side of the leadership coin, leader traits and characteristics, can then be assessed and keyed to the situation criterion. There is evidence in the research that some methods can be combined in an experimental design to meet all these requirements. If so met, it is hoped that a practical problem of selection and prediction can be satisfactorily investigated.

CHAPTER III

HYPOTHESES AND METHOD

The literature review has shown that leadership is defined most frequently in terms of the situation, and that leadership does not occur in a social or psychological vacuum. The situation approach in leadership studies tends to neglect study of the leader as such, and has all but eliminated the approach to leaders through traits. In the face of the evidence a unitary leader trait cannot be assumed. Leader traits are demonstrably complex, and confounded by the situational approach. Perhaps traits of leaders can be better understood and measured when identified as traits, but as traits related to a specific situation.

Thus, it is assumed that traits (characteristics and observable behaviors) identifying leaders, and by which good or effective leaders could be discriminated from the relatively poorer or ineffective leaders, could be specified for a given situation. If so, then predictive selection of the most effective leaders would be possible.

For purposes of this investigation traits of leaders are taken to include those which are measured by the leadership indices proposed by Bass, by Cattell and Stice, and the characteristic attitude or interpersonal perception associated with effective leadership in certain circumstances, as reported by Fiedler.

The conditions under which measurable leader traits can be identified in a specified situation appear to be present in the leadership roles assigned to senior naval petty officers as the commanders of companies of newly recruited personnel undergoing a prescribed and controlled training program of initial military indoctrination and naval orientation.

I. Outline of the Subjects' Natural Leader Roles

Typically, a navy man assigned the duties of a company commander in a recruit training program is a petty officer of the chief or first class rating, with approximately eight to eighteen or more years in the U. S. Navy. The regulations of the command direct and require a company commander to organize, supervise, to instruct and to advise, to counsel, to discipline and inspire, and to administer the company and evaluate the recruit. "He is responsible for the leadership, military training, administration, order, discipline, morale and the general direction of the company under his charge."[162]

A company consists of approximately eighty recruits who, following induction, have been sent to a recruit training command for approximately nine weeks of indoctrination. The training consists of orientation to naval and military customs, organization and procedures and way of living. It aims at giving the recruit a personal sense of discipline, pride and participation in naval traditions and purposes. Here the recruit begins to live life as a sailor in the United States Navy and upon successful completion of the training program he is qualified as an apprentice seaman, ready to assume aboard ship or at another

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[162]Recruit Training Command Organization and Regulations Manual, RTC Instruction 5400.1, Section 5, Item I. (September, 1961) U. S. Naval Training Center, Great Lakes, Illinois, p. 1-5I-1.

shore station, duties appropriate to his training and experience. The training, or "boot camp", emphasizes four areas of performance: general and personnel inspections, military drill in competition, academic achievement on weekly tests, and athletic competition. The most important underlying theme of the training as a company is cooperative and productive team work. A competitive system is in effect for all companies, which stimulates effort and team spirit. Companies are graded in each of the four areas of training emphasis, and achievement awards are given weekly within battalions and regiments. Consistently outstanding and unusually excellent company performance are acknowledged publicly by awards given at a formal military review for graduating companies at the end of training.

After initial processing which follows the recruit's arrival for training and includes physical examinations, psychiatric screening, personnel classification testing, and uniform issue, the recruits who appear fit to enter training are assigned as members of an eighty man company. It is then that the commander first meets his new charges as a company. Ceremonies in which the company is commissioned and the company commander given an official charter mark the official entrance of the recruit and the company into nine weeks of training.

Training time is divided into three distinct phases. The first phase is a three-week period during which military fundamentals are emphasized, and this is followed by one week called "service week" during which the company members assume various support and work details in the command, such as acting as guards, messengers, mess cooks and orderlies. The last segment is the secondary phase of training which consists of the remaining five scheduled weeks. Technical

orientation is given during this phase, and a demonstration of the assimilated training from the previous phases is expected. A program of measured competition is in effect during this phase.

Company over-all efficiency scores are computed from an average of the weekly weighted scores attained by each company during the fifth to ninth weeks of training. Scores are assigned each company for the week's performance in the areas of (1) general inspections, (2) military drill in competition, (3) academic achievement on weekly tests, and (4) for athletic competition. The first three areas are each given a weighted value of five, and the fourth area a weighted value of one. The first two scores are assigned by experienced company commanders who are acting as Brigade Staff Inspectors. Academic achievement is based on the average company grade in weekly written tests. Athletic competition points are earned by company members or teams participating in a regular series of athletic games and rigorous track and field events, also an intra-company competition.

All scores are based on a point system in which 4.0 is perfect. Marks are awarded in values to the third decimal place (0.001). A frequency distribution of 1,000 company scores and other analyses of scores grouped differently indicate a normal distribution of scores, and strongly supports the validity of the scores as used in the competitive system, to indicate various degrees of efficiency in company response to training.

A company commander serves as leader for several companies during his normal three year tour of duty in a recruit training command. The program as outlined here represents a relatively consistent environment and routine for the commanders of successive recruit companies.

It appeared that this was a situation which provided opportunity to study the repeated experiences of individuals as appointed leaders in a more or less constant or consistently structured situation invloving large, formally organized groups. The effectiveness of the groups (companies) as measured by the over-all training effectiveness index, is an objective criterion which can be related to the leaders' effectiveness. In practice, it contributes heavily to a company commander's personal and professional reputation and strongly influences or is reflected in official periodic evaluations of his performance.

II. Statement of the Hypotheses

This population of senior naval petty officers represents a suitable group for study in a situation in which measures of traits, as defined above, may be obtained and used to assess the relationship between leadership occurring in small, informal, and experimental groups and leadership occurring in large, formally organized, natural groups. Several hypotheses were formulated concerning the relationship between traits, leadership, assessments, and situational criteria of leadership.

Hypothesis 1. The degree of effectiveness of leadership in the formal, natural, leader role, measured by combined achievement scores and superiors' ratings of performance, is directly related to the habitual attitude of psychological distance, as measured by low AS$_{Q}$ scores.

Hypothesis 2. Individuals attaining greater degrees of effectiveness as formally appointed leaders in large groups do not tend to emerge as leaders showing effectiveness (influence) in small, informal leaderless groups. That

is, large formal groups differ from small, informal groups in regard to individuals identified as leaders by their degree of effectiveness.

Hypothesis 3-A. On the basis of personality traits, as measured by the Sixteen Personality Factor questionnaire, the relative effectiveness of leadership demonstrated in small, informal, artificial groups can be predicted. That is, lambda, the index of relative effectiveness of leadership demonstrated in small, informal discussion groups can be predicted by L_s, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Hypothesis 3-B. On the basis of personality traits, as measured by the Sixteen Personality Factor questionnaire, the effectiveness of leadership demonstrated in large, formal, natural groups can be predicted. That is, the index of leadership effectiveness in large, formal, natural groups, based on a combination of achievement scores and superiors' ratings of performance, can be predicted by L, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Hypothesis 4. Personality trait patterns, as measured on the Sixteen Personality Factor questionnaire, can be predicted by extrapolation from the interpretation given AS_o scores. That is, given a very high or very low AS_o score, and following interpretations given these scores by Fiedler, the presence of certain personality traits as measured by the Sixteen Personality Factor questionnaire can be predicted.

To test these hypotheses the three measures of leadership were computed from the data collected on a sample of sixty-eight company commanders selected

from among the personnel currently available or acting as company commanders in a U. S. Navy recruit training command.

III. Search for a Criterion: A--Objective Scores of Performance in Terms of Group Achievement

A criterion of leadership effectiveness was the first problem. When the study was begun there were 180 individuals available in the pool of company commanders ready for assignment to or actually leading a company. One hundred and thirty-nine of these had experience with three or more companies, having served as their leader through all nine weeks of training. Over-all efficiency scores for all companies each man had led were obtained from the Military Training Office of the Recruit Training Command. These scores were analyzed to determine the feasibility of these scores for use in the study, and, if feasible, to obtain the best treatment of scores for the purposes of this study.

Table III shows the means of over-all efficiency scores attained, compared according to the total number of companies led by company commanders. There is a marked over-all tendency for scores to increase with the experience of the company commander, indicated by the gain in means for successive companies over the mean score for the first company led. It is shown that there is a mean gain in all scores over the first company scores, and this gain increases as more companies are led.

This comparison of company commanders according to the number of companies led showed not only that there is a definite effect of experience, regardless of the number of companies led, but also that with more experience, a company commander tends to continue to improve in his leader effectiveness compared to the score attained with his first company.

TABLE III

MEANS OF COMPANY OVER-ALL EFFICIENCY SCORES ATTAINED BY COMPANY COMMANDERS GROUPED ACCORDING TO THE TOTAL NUMBER OF COMPANIES LED

Company	Group A (N=46)	Gain Over First Company	Group B (N-56)	Gain Over First Company	Group C (N=29)	Gain Over First Company	Group D (N=9)	Gain Over First Company
1	3.259	----	3.216	----	3.199	----	3.264	----
2	3.323	.064	3.295	.079	3.299	.100	3.331	.067
3	3.350	.091	3.268	.052	3.285	.086	3.376	.112
4			3.325	.109	3.298	.099	3.369	.105
5					3.3620	.163	3.396	.132
							3.460	.196
Mean Gain Over First Company		.077		.080		.114		.126

Some selectivity is operating here. In practice, those commanders who do exceptionally well and/or prefer this assignment to other administrative duties in the command tend to be continued in the billet beyond four and five companies. The grossly unsuitable are eleminated early, as noted in the introduction (Chapter I).

A further attempt to delineate this effect of experience was carried out through analyses of variance among scores for companies led in three sequences: the first through sixth; the first through fourth; and the second through fourth companies led. Table IV contains the results of these analyses, which indicate a markedly significant difference was demonstrated somewhere among the scores for the first through sixth and for the first through fourth companies led. Inspection of the means for the first companies (M=3.229), for the second companies (M=3.308), for the third companies (M=3.310) and fourth companies led (M=3.321) suggested that the greatest contribution to the variation in scores occurs between the first and second companies. The minimum value for the significance of t at the .01 level is 2.576. We can conclude with a high degree of confidence that experience with successive companies is a source of real variation in the scores. Testing the difference between means for the second and third companies and between means for the third and fourth companies did not lead to significant t values (t = .1342 and t = .1486, respectively). However, each t was significant for the differences between means for the following: for first and second companies led (t=5.448); for first and third companies led (t=5.199); and for first and fourth companies led (t=5.509).

The analysis of variance for the sets of scores for second through fourth companies failed to maintain this indicated degree of difference among the sets for companies two, three and four. Thus, contrasted to the clearly significant differences indicated among the sets of scores it appeared that scores for the selection, that is, for the criterion of performance as expressed in leader effectiveness, should be based on the scores for the first through fourth companies. Some method of weighting was considered necessary to account for the

TABLE IV

ANALYSES OF VARIANCE IN OVER-ALL EFFICIENCY SCORES ATTAINED BY COMPANY COMMANDERS WITH VARIOUS COMPANIES

	First Company N=139	Second Company N=139	Third Company N=139	Fourth Company N=93	Fifth Company N=37	Sixth Company N=9	
X	448.809	459.846	460.117	308.871	124.753	31.144	1833.540
M	3.229	3.308	3.310	3.321	3.372	3.460	3.298
x^2	2.2025	1.8330	2.4542	1.3920	6.5632	0.0888	14.5337
d	.069	.010	.012	.023	.074	.162	
d^2	.004761	.000100	.000144	.000529	.005476	.026244	.037524
nd^2	.442373	.013700	.019728	.049197	.202612	.236196	.963806

Company Series	Components	Degrees of Freedom	Sums of Squares	Variance	
First through sixth	Between sets	5	.9638	.1928	F = 7.3030
	Within sets	550	14.5337	.0264	
First through fourth	Between sets	3	.7071	.2357	F = 15.1284
	Within sets	506	7.8817	.0156	
Second through fourth	Between sets	2	.0103	.0052	F = 0.3347
	Within sets	368	5.6792	.0154	

experience factor which contributed to differences in scores between the first and the successive companies.

Scores for the first through fourth companies were combined in the following fashion. To the over-all efficiency score for the commander's first company led (X_1) was added a factor computed from the sum of the over-all efficiency scores for the second (X_2) company and companies led through the fourth company (X_i) divided by the number (i stands for 3 or 4, as appropriate) of the last company led minus 1. The sum of X_1 and the combined factor for X_2--X_i was then divided by two to give index of leadership efficiency, Over-all Efficiency Index (OEI).

$$OEI = X_1 + \frac{\frac{X_2 + X_i}{i - 1}}{2}$$

The distribution of these scores for 139 company commanders has a mean OEI of 3.273, and standard deviation of .094. The curve approximates normality with a slight negative skewness. From among these 139 commanders, three groups of seventy-five were chosen randomly using a table of random numbers and referring to the project code numbers assigned to the company commanders when arranged in alphabetical order.[163] These samples were then compared with the source group of 139. The first sample drawn had a distribution of OEI scores with a mean and standard deviation closely approximating the parent population (M=3.273, =.089). This sample (N-75) was accepted as the experimental sample.

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[163] W. J. Dixon and F. J. Massey. Introduction to Statistical Analysis. (New York 1951). pp. 366-370.

IV. Search for a Criterion: B--Superiors' Ranking of Subjects' Performance

In addition to company achievement, another index of effectiveness of leadership was obtained through superiors' evaluations of the relatively satisfactory manner in which a subordinate (i.e., company commander) is observed to perform the duties of an appointed leader. In the brigade structure of the training department of a recruit training command, the hierarchy of immediate superiors to the company commanders is directly in contact and familiar with the way a company commander meets the requirements placed on him. The company commander routinely is evaluated carefully for his effectiveness in organizing and indoctrinating his company, the extent of aid given the company, how he inspires them as a group, and in managing individual problems among marginally performing recruits.

In the organization of the brigade, under the Military Training Officer there are two regiments, each of which is comprised of seven to thirteen battalions, depending on the number of recruits in training at any one time. In each regiment and battalion there is a commander, who is a commissioned officer, and an adjutant, who is an enlisted man with the rate of chief or first class petty officer. Regimental commanders are more senior in rank and experience in recruit training to the officers who serve as battalion commanders. Adjutants in both regiment and battalion levels have had experience as company commanders.

These commanders and adjutants were considered, by virtue of their office and duties, to be sufficiently familiar with the functioning company commanders to submit rank order judgments of their effectiveness. The routinely used

methods of evaluating performance were not likely to discriminate the range of effectiveness desired, thus it was decided to use a ranking method and a basis of ranking or describing performance which was extraneous to the command and official records was decided upon.

First, a description of the duties of the persons who would be the rank judges--the regimental and battalion commanders and their adjutants.

In addition to his general military and administrative responsibility for the personnel and functions of the regiment and its subordinate battalions, the regimental commander has the specific duties of carrying out the prescribed training curriculum, and is responsible for maintaining an exemplary military appearance, demeanor and deportment among all staff personnel (i.e., non-recruit personnel). With respect to company commanders he receives reports from battalion commanders regarding all aspects of their performance, reviews periodic evaluations, and deals directly with the company commanders in the general management of their companies and in handling and disposing of problem cases among recruits. He is in a position to be familiar with and compare the leadership and general performance methods and effectiveness of all company commanders, as each company in training spends approximately one half of their nine weeks in each regiment. All evaluations of training progress by companies are submitted through the regimental commander to the training evaluation sections.

The battalion commander has direct daily contact with all or most of the company commanders whose companies may be assigned to the particular battalion. His general responsibilities within the battalion organization are similar to

the regimental commander's, but at a lower echelon. All company commanders of the battalion report to him. Part of his duties involve daily inspections and lectures to the companies. Problems are reported directly by the company commander to the battalion commander. All evaluations of the company progress in training are submitted through the battalion commander to the regimental commander and other superiors.

Adjutants in both regiments and battalions assist the regimental and battalion commanders in the duties outlined above. The adjutant is directly involved in the administrative liaison with the company commander, and he has the specific additional duties of supervision and administration of all recruits and staff personnel in the battalion. The adjutant immediately advises company commanders on methods of management of the companies, and in solving training problems. The adjutant obviously is a key man in the articulation between the company commanders and their companies, and between the company commanders and their superiors in the battalion and regimental organization.

The foregoing outlines the duties of these personnel in the supervisory and administrative staffs of the battalions and regiments. It can be seen that these duties provide ample opportunity for developing the familiarity and for sound evaluation of company commanders as required in establishing the secondary criterion for this study.

Persons who lead or currently were serving in the positions described on the battalion and regimental staffs were asked to judge the performance of the seventy-five company commanders in four areas of performance. Standards for the areas or aspects of company commander performance were established as

proposed by personnel experienced in the organization, direction and supervision of the over-all training program. Six officers were interviewed by the experimenter to obtain material describing these important performance areas. The six included the Military Training Officer and his assistant, both regimental commanders, and two other officers. All but two had over three years experience in the training command. Two of the officers were serving in their second tour in the command. Each had previously served here as an enlisted man and company commander, and each had attained outstanding records in the latter capacity. They were subsequently promoted to commissioned rank. One of these officers served currently in charge of the staff indoctrination school for new personnel reporting to the command (particularly company commanders). The other officer had charge of a special unit, directing a group of twelve to eighteen former company commanders worked in the intensive training of recruits whose slow response to training was attributed to limited ability, unfavorable attitudes, or who had fallen behind in training because of illness. These latter two officers had been battalion commanders for approximately one and a half years, also.

In the interviews these six officers were requested to indicate the areas of primary importance concerning a company commander's qualifications and performance as an effective leader of a company. Examples and descriptive statements were requested. General discussion and their thoughts about the two central foci--qualifications and performance behavior--of good performance were elicited. Notes were taken of each definitive statement made, and later each statement was transposed to a card. The cards were sorted and found to

focus on four fairly distinct aspects of performance, with a minimum of repetition and overlap. The descriptive statements were then edited to obtain some unity of form and style, and prepared as four dimensions on which rankings of the selected seventy-five company commanders could be obtained.

These descriptions of performance dimensions were considered to reflect the standards of company commander performance extant in the training command. The experimenter was requested to provide copies of the standards for routine use in the Recruit Training Command as guides for the routine performance evaluations of company commanders required to be submitted by battalion commanders. The standards were to be integrated into regimental instructions to the battalion commanders.

Rankings of the study sample were obtained from regimental and battalion commanders and adjutants on seventy-five subjects. Three former battalion commanders with considerable experience in that billet also were asked to act as judges. There was then a total of twenty judges. Only persons experienced in the billets acted as judges. All judges' experience included at least six months in the billet as a regimental or battalion commander or adjutant; all judges had been in the command over eighteen months. Adjutants were all experienced company commanders who had been serving as adjutants four or more months, and had been in the command over eighteen months.

In Appendix I are given the directions to the judges for assigning ranks, and also samples of the standards of performance characteristics. On each of four occasions, twenty-four to forty-eight hours apart, judges were given a sheet describing a single area or characteristic of performance and generally

demonstrated behavior. He was also given a deck of seventy-five small cards with a subjects' name on each, and the sorting instructions. A forced rank judgment was required by this method, and the rankings were recorded by the judges. Subjects' code numbers were entered on a special sheet provided. Judges were instructed to make no record of their rankings except that returned to the experimenter. All decks of cards, standards and instructions were collected by the experimenter before the next set of materials was delivered for ranking the subsequent area of performance. New alphabetized decks were provided for each successive rank. This procedure was repeated until all subjects were ranked four times by all judges.

A check on the first ranking made was conducted to determine the extent of recording errors. None were noted. Judges had, in a few instances, noted errors themselves in the process of recording their sorted cards, and made the necessary corrections. Spot checks of the subsequent three rankings indicated judges continued to do this, and no other recording errors were found.

The assigned ranks then were converted to a normal deviate z score for all subjects. Each judge's four rankings of each subject, expressed in z scores, were averaged then to give the subject his judge-average, and the twenty judge-averages averaged to yield a final judged rank for each subject. This sample of seventy-five was then accepted as the original experimental sample.

V. Data Collection: First Phase--Group Testing

In the period of time between originally selecting the seventy-five possible subjects from the total 180 men in the company commander pool and the completion of the analysis of over-all efficiency scores and the scheduling of the next step, the group testing, there was a loss of five men from the sample

due to transfers, emergency leave, and other similar unexpected events.

The remaining seventy men were assembled for administration of the Cattell Sixteen Personality Factor test and the Assumed Similarity scale. This testing was conducted in a standard classroom large enough to accomodate all seventy men. The room was well lighted, and heating and ventilation were comfortable.

When assembled and seated in alternate seats, but adjoining rows, the purpose of the entire project was outlined as an investigation into the relationships between characteristics and attitudes of good shipmates, and the way they work and get along together. The purpose as presented apparently was acceptable to all members of the group. Assurances were given to the subjects that the interests of the sponsors of the project were experimental and impersonal, and that no performance or result concerning them would reflect in any man's individual service record or other official evaluation of their performance of duties in their present billets. Further questions by subjects during this testing session and in later contacts were always accepted and met with the response to reassure the subject that the study was not prompted by nor would it be reflected in any personal records of the subjects' performance, but was work of a serious nature concerning certain tasks and job situations. Direct relevance to their duties as company commanders was suggested, but not in detail. This seemed to facilitate interest and cooperation. There were no objections to participating. Cooperation with the ensuing instructions and completion of all tasks given appeared favorable. One person deliberately took issue with three of the items of the Sixteen Personality Factor test, though all other subjects completed all items as instructed. Three subjects omitted

through error about three items each on the Assumed Similarity scale. The fact of so few discrepancies indicates a high degree of cooperative interest and understanding of the task presented, lending reliability to the general procedures.

The group was administered the Cattell Sixteen Personality Factor test. Procedures outlined in the publisher's manual for the test were followed and the standard instructions given. All subjects completed the test in approximately forty minutes. These tests were then collected and the subjects excused for a ten minute period.

During that period the experimenter completed distribution of copies of the Assumed Similarity scale to the empty desks separating the subjects. When the subjects re-assembled, they were briefly instructed to read with the experimenter the directions for the next task, and then proceed to make their ratings according to the instructions on each cover sheet for the three scales. Particular attention was called to the fact that different persons were to be rated. The subjects were directed to read carefully the different instructions for each sheet. As each rating was completed, subjects were instructed that the sheets were to be turned face down on the empty desk nearest them. This removal of completed ratings limited comparisons between ratings made and avoided undue influence of subsequent ratings. Monitoring by the experimenter confirmed essential compliance with this instruction. When all subjects had completed the three ratings, the papers were collected.

There was a brief period of further questioning, handled as noted above. Before being dismissed, the subjects were told they would be contacted again

for another brief session of work in smaller groups. It was explained that formation of the groups would be in accordance with a particular system, and compliance with the announced schedule was very important.

VI. Data Collection: Second Phase--Composing Problems and Selection of Members for Problem Discussion Teams

Subsequently, sessions with the problem solving groups were scheduled. As the analysis of the judged ranks had not been completed at the time of the scheduled group discussion periods, teams were assembled on the basis of the individual's rank or standing as shown by the OEI. To assure as nearly as possible equal distribution of the various teams' total leadership effectiveness, the following method was followed for selection of the team members.

Teams were made up of the members whose ranks corresponded with the sequence of numbers 1, 11, 21, 31, 41, 51, 61, and 71 for the first team; members ranked by the OEI as 2, 12, 22, 32, 42, etc. for the second, and so on through all subjects comprising ten teams in all with a membership of seven each. The final assigned team is shown in Appendix III.

Problems given to the teams for discussion and ranking of solutions, according to Bass' method, were of three types: five cities to be ranked by population size; five words to be ranked according to the frequency of occurrence or usage in ordinary literature and publications; and five proposed solutions to situation problems described as similar to those encountered by company commanders. The composition of the problems provided a gradient of difficulty, and at each of three difficulty levels a series of problems including each type was presented. Thus, the sequence of problems was cities first, then words, then recruit situations. Three sequences were given, and each successive

sequence was designed to be of increased difficulty. A total of nine problems was submitted to each group.

The lists of cities were compiled from a U. S. Bureau of the Census report of the 1960 census. The report shows in rank order the populations of cities having 25,000 inhabitants or more. As taken from this report, a different set of five cities in each sequence was given each team, and within the sequence of three problems on city size the size range was systematically narrowed from the first to the second and third lists. While maintaining comparability of the problems by selecting cities of approximately the same range for problems for the various teams, actually different cities were listed. This variation of items tended to avoid or control comparisons and discussions outside the group, and minimized information being passed along to members of the teams scheduled to meet later than other teams.

Cities were selected for the first problem for each team from the ten ranks commencing at five approximately equidistant points along the full range of the ranks for cities from ranks #2 through #675.

For the second problem in the series, cities were selected from ranges of ranks approximately equally distributed over the last three-fourths of the entire range, that is--from rank #170 through rank #673.

Though repetition of listing of some cities occurred between sets, and at different levels of difficulty, in no problems for any team was a city presented twice for ranking. The complete list of cities in problems is shown in Appendix II. The method of selection of items for the city problems tended to produce lists of comparable and controlled difficulty for ranking for all teams, and increased the difficulty for ranking in successive problems.

The second problem in each sequence was one in which subjects were asked to rank the listed words for frequency of occurrence in popular publications and ordinary literature as reported by Thorndike and Lorge.[164] The reported relative frequency of occurrence was used to determine the difficulty level for each of three sets of five words in a series of three problems.

To select the actual words for the various problems in each team, letters of the alphabet were numbered in sequence from A to Z. These numbers were drawn from a table of random numbers and entered in cells for each team and each level of difficulty for all three sets. An example of this designation is given in Table V.

TABLE V

DIFFICULTY LEVELS OF WORD LISTS AS DETERMINED BY FREQUENCY OF OCCURRENCE OF WORDS IN LITERATURE

PROBLEM IN SERIES	Number 1	Number 2	Number 3
Frequency of word occurrence per 1,000 words in literature by Thorndike and Lorge count	OVER 100 49-30 18-14 9-8 5 1	OVER 49 39 29 19 9	24 12 6 3 1

Next, words of the designated frequency and alphabetical grouping were taken from Thorndike and Lorge's compiled lists. If a word of the required frequency

[164] E. L. Thorndike and I. Lorge. The Teacher's Word Book of 30,000 Words. Part I, pp. 1-180.

was not found in its alphabetical group, then the search was continued to the next alphabetical group. When words of the proper frequency could not be found commencing with the letters x, y, and z; the search was turned to words beginning with the letter w.

When a reasonable search of lists of words through two letter groups of the alphabetical lists did not locate a word of the desired frequency, a word of a frequency closest to the prescribed frequency (e.g. 38 or 40 vice 39) was selected from the original alphabetical group consulted.

If the word was to be the first selected in the problem list, the first word in the alphabet list of the prescribed frequency was taken for the problem; if the word was the second selected, the second word of the prescribed frequency and alphabetical group was selected, and so on through the five words for each problem.

When presented to the groups for ranking and discussion, the words and cities of each set of five were arranged in alphabetical order.

Problems of the third type for the ranking and discussion procedures in teams were prepared in collaboration with the Military Training Officer of the training command. For these situational problems the Military Training Officer suggested situations typical in a company commander's experiences in the recruit training setting and suitable for the procedures of the study. Possible solutions were devised in terms of deliberate ambiguity. Some solutions indicated no conflict with established policies within the command, but it was possible to interpret from the solutions some degree of failure to conform to the spirit of such policies through behavior or manner of dealing with the

problems. In other possible selections, the constructive attention to an individual's problems which was offered would involve time and effort which the company commander would take away from other individuals and from the company who deserves his attention as much as the problem recruit. Between these two extremes, other choices given can be described essentially as a "do nothing" approach, or avoiding coming to terms with the situation. In general, none of the alternatives offered would be particularly acceptable or commendable, and very unlikely as the first inclination to action typical of an effective company leader as stated. They were designed in this fashion to stimulate discussion. Elaboration, interpretation, and justification brought out in the discussions were expected to resolve the ambiguity according to a degree of convergence of group opinion during discussion. The final resolution then depended on the interaction of the members, and the influence of individual members exerted in favor of one or another solution.

VII. Description of Test Materials

The following description of the tests and methods of assessment used is given in the order in which they were administered to the subjects.

The Cattell Sixteen Personality Factor test is a standard test published by the Institute for Personality and Ability Testing. Detailed description, standardization procedures, and both clinical and occupational norms are provided in the handbook furnished by the publishers. A special manual is provided for Form C, which was used in this study. Form C is a shortened form of the earlier editions, Forms A and B, and uses an elementary vocabulary, and includes an additional scale designed to reveal attempts at distortion of the self-picture.

The test is presented in booklet form and includes six items for each of the sixteen factor analytically identified traits or factors, plus seven motivational distortion questions. To avoid misleading distributions of responses and to allow the subject comfort and latitude of response, three alternative responses for each item are available to the subject. The subject marks an answer sheet to indicate his response to each item. The test is untimed, but subjects are exhorted to be diligent. Answers are required for every question. Templates (two) are used for scoring, and are of a design which facilitates speed and ease of tabulating the responses. Norms for the general, non-student male population and the separate norms for the motivational distortion scale were used to convert the subjects' raw score to sten scores.[165]

From the sten scores for the various scales, L scores were computed for each subject in accordance with the formula given by Cattell and Stice.[166] The L scores were then placed in rank order.

The Assumed Similarity scales provided the subjects were all of the same form: twenty-four dyadic adjective items with six scalar positions between them in which the subject was to mark his judgment of the person being rated. General instructions were given and subjects first rated themselves, and then two hypothetical other persons regarded by the subjects as a preferred and a non-preferred type of co-worker or shipmate. Scoring was done by assigning values to the scale positions of one to six, from left to right for all items

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[165] Ibid., 13.

[166] Handbook for the Sixteen Personality Factor Questionnaire, Forms A, B, and C. 1957 ed. (with 1962 Supplementation), (Champaign, Ill.), p.38.

and all three rating scales. The ASo score was computed on the basis of the ratings of the hypothetically preferred and non-preferred persons. The method of computation followed Fiedler's recommendation.[167] Computed scores for each subject were then arranged in rank order, and ranks assigned.

The lambda index, as computed by Bass' method, is derived from the rankings given by group members to solutions to problems presented in discussion groups.[168] An individual member's rankings correlation with the group's rankings before and after discussion is measured, indicating the degree of influence and agreement involved in the member's interaction with the group. Data yielded (in ranks) by the various groups or teams were transferred from the problem sheets on which recorded by the subjects during discussion to work sheets for each problem in each team. An example of the work sheet is given in Appendix II. Then, according to Bass' method, [169] the lambda for each subject on each problem was computed, and summed to give each team member's total lambda index, or score for influence. The tedium of clerical and computational work can be checked readily on each problem, as the algebraic sum of all scores for team members on any one problem is zero. Data for the fourth hypothesis were collected in the following manner. Interpretation of the ASo scores was taken from Fiedler's conclusions.[170] Similarly, the non-technical descriptions

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[167]Fiedler, Leader Attitudes and Group Effectiveness, p.

[168]B. M. Bass, Sociometry (June, 1960), pp. 195-202.

[169]Ibid, 199-201.

[170]Fiedler, Leader Attitudes and Group Effectiveness, pp. 17-22, 43.

given for high and low scores on the sixteen factors as presented by Cattell were prepared with rating scales in sten score values.[171]

Twenty officers and specialists familiar with the concept of company commander's role and performance were then asked to use the two descriptions of the high and low ASo scorers as pictures of the typically effective and non-effective leader. With this (high or low) sterotype in mind, they were asked to re-describe the type of individual in terms of the degree he possessed the various factors of the Sixteen Personality Factor which were also described interpretively. These re-descriptions in terms of personality traits, as Cattell's extensive research has derived them, were to be expressed in terms of values of the sten scores. Judges were asked to rate both the high and the low ASo scorer. Half of the judges rated the high scorer first and half rated the low scorer first. From these ratings given by judges, mean scores on each of the scales were computed. Then these mean profiles on the Sixteen Personality Factor test were compared by the sign test with actual profiles of the fifteen subjects whose ASo scores were at the extremes of the range of scores for the total sample of subjects. The judged profiles were also compared to criterion-scored extremes-i.e., subjects high and low ranked on the RTC criteria.

The materials and instructions provided these raters or judges of the extremes of effective leaders as described by ASo scores are shown in Appendix VI.

VII. Proposed Statistical Tests of Hypotheses

The data were then analyzed in the following manner to test the four hypotheses given above.

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[171] Cattell, Handbook Supplement for Form C, p. 14-17.

The first hypothesis predicts that, for these subjects, their relative effectiveness of leadership as company commanders will be directly related to the interpretive attitude of psychological distance as measured by low ASo scores.

The rank ordering of company commanders according to the criteria of performance in the natural leadership situation required testing of this hypothesis by a Spearman rho. The actual efficiency scores as well as the ASo scores might be considered normally distributed, but they do not meet the necessary assumptions for interval measures, thus a Pearson r would not be appropriate. The rho obtained was tested for significance by a two-tailed t-test (Siegel, formula 9.8).[172] The hypothesis was to be considered supported if a $p = .05$ level of significance was obtained.

For hypothesis 2 it was predicted that the leadership indices for large and small groups would be unrelated. The hypothesis stated that individuals attaining greater relative effectiveness as formally appointed leaders in large groups do not tend to emerge as leaders showing greater relative effectiveness in small informal leaderless groups in leaders as identified by their relative effectiveness.

Since the second hypothesis was predicting no relationship between leadership effectiveness in two situations, large groups and small groups, a correlational measure of the relationship was employed. Assumptions regarding the scores and the appropriate measure of the correlation are essentially the same

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[172] S. Siegel, Nonparametric Statistics for the Behavioral Sciences, (New York, 1956), p. 212.

as in the first hypothesis, and thus a Spearman rho, tested by a two-tailed t-test was employed. A p = .05 level of significance was deisgnated for acceptance of the hypothesis.

The third hypothesis involved two sub-hypotheses, the second somewhat contingent upon the results of the first. Hypothesis 3-A concerns the relationship of two separate measures of leadership in the same situation--the small informal, experimental discussion group. One measure is predictive, based on personality traits, and the other a criterion of effectiveness attained as leader in the group. A Spearman rho (corrected for tied ranks)[173] was computed to measure the relationship between the L scores (per Cattell and Stice) for all subjects, and their lambda scores (per Bass). Significance of the coefficient of correlation was tested by t (Siegel, formula 9.8). Support for the hypothesis would be indicated if p = .05 level of significance was obtained.

In addition to this test of the claims of Cattell and Stice for the L score formula for predicting leadership, a test of the method of deriving specification equation formulae for predicting selection criterion measures was tested. Thus, various personality factors were correlated with the criterion performance, that is, lambda, a new formula derived, and L scores computed. These scores in turn were correlated with the lambda scores by rank order correlation, rho, and tested for significance by the same t-test formula used above. Since the formula was derived from the situation, that is criterion

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[173] Ibid, 209-210.

keyed, a higher level of significance was established as necessary evidence for support of the hypothesis--p = .01.

The second part of this third hypothesis was intended to test the claim of Cattell and Stice in its broader aspects, that is, by extending the application of criterion keyed leader scores to the relative effectiveness of leaders in large groups. Thus, for each subject the sixteen factors and a criterion of performance in the real, large group situation were correlated, a leader equation derived, and these L scores correlated by rank order correlation (Spearman) with the criterion scores. Significance was tested as above, p = .01 level indicating the hypothesis was supported.

The statistical treatment of the data to test the fourth hypothesis was a sign test the Wilcoxon matched-pairs signed-ranks test (Siegel, formula 5.5).[174] The null hypothesis would be rejected by a one-tailed region of the magnitude of p = .01.

Testing hypothesis four comparisons were also made of the Sixteen Personality Factor trait profiles associated with the two extremes of leader effectiveness as indicated by the judges and by the actually attained scores on the ASo and RTC criteria. Subjects ranked in the upper and lower twenty-five per cent were used for these comparisons.

Chapter IV will present the results of the various responses and performances of the subjects, and the statistical tests of relationships of these data.

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[174]Siegel, Nonparametric statistics, p. 81.

Chapter IV

PRESENTATION OF RESULTS AND DISCUSSION

The data for the investigation of the basic thesis of this study are the criterion data and the experimental data, and they will be presented in that order.

Seven of the seventy-five company commanders selected as subjects for the study did not remain available to participate through the completion of the data collection. Thus, the overall efficiency scores (OEI) and the experimental data (scores on the 16PF test, the Assumed Similarity scale and the relative effectiveness of leadership in problem solving groups) are reported here for a final sample of sixty-eight subjects. The statistical analyses testing the hypotheses are based on a sample of sixty-eight subjects. However, data on which the reliability of the rank rating by judges was computed are reported for all the original seventy-five subjects because of the inherent dependence of the judges' rankings on comparisons made with all subjects.

Judges rankings of seventy-five subjects on four performance characteristics were converted to normal deviate z scores. For each subject a single judge's four rankings, expressed in z scores, were averaged to give an overall judge-rank. The twenty judge-ranks on each subject were then also averaged to obtain the subject's final overall judged rank for performance as a company commander. A reliability coefficient and was computed by the odd-even method on the basis of the overall averaged z score for the assigned ranks. An r

of .89 was obtained. The coefficient approaches the upper limit of the required magnitude to demonstrate sufficient substantial agreement among the judges. It appeared that the judges were in essential agreement on the standard used in the ranking of the company commanders. The overall rankings were accepted as a criterion for the study. These rankings were then brought in line with the final total sample of sixty-eight subjects by re-ranking after deleting the seven missing subjects.

This criterion was then correlated with the objective performance scores (OEI) to test the feasibility of combining them as a single criterion of the company commanders' performances. A Spearman rho was obtained, and found to be .72. This high correlation is considered to be evidence of a marked relationship between these two methods of assessment of the company commanders' general performance. Apparently performance standards, both objective and subjective, consistently assess the individual's performance. In actual practice, they should be complimentary. Here interrelationship is likely. The superiors set the standards of performance behavior and are responsible for enforcing them. The superiors are also in a position to be informed of the degree of adherence to these standards generally and by particular individuals.

It was concluded that the two criterion scores on each subject could be combined to give a single satisfactory index of performance. The ranks on each criterion for each subject were simply added arithmetically and a final criterion rank assigned on the basis of the total. This method of combining apparently reliable scores avoids the questionable results of weighting and does not pretend more than the evidence indicates. Thus, agreement would be expected

between the objective and subjective, but quite frequently is not so demonstrated. The subjective bias to which discrepancy between such scores is often attributed apparently was not operating in this instance.

For each subject the ranks assigned by subjective judgment of his performance characteristics, the objective scores of his achievement or efficiency, and the final combined criterion rank scores are shown in Table VI. Subjects are identified by code numbers assigned for the study based on their original position in the alphabetical list of one hundred thirty-nine company commanders from which the experimental sample was selected.

Coefficients of correlations were obtained by various comparisons of the experimental and criterion data. Table VII shows the results of the statistical testing of the first three hypotheses.

The first hypothesis contended that the attitude toward others characterized as one of psychological distance and measured by a low ASo score would be associated with the effectiveness of company commanders in charge of naval recruits undergoing indoctrination training. It was expected that the businesslike, impersonal, somewhat authoritarian appearing leader would be likely to express this tendency in his responses on the Assumed Similarity scale, and further, that he would be the effective company commander in terms of overall training efficiency attained by companies he led. However, the hypothesized relationship is not at all supported by the evidence here. Of all the relationships between the small group measures and the conditions of this experiment, it was most strongly anticipated that this association had the greatest potential for transfer of application from small to large groups.

TABLE VI

SCORES AND RANKS OF LEADERSHIP EFFECTIVENESS CRITERIA

Subject code	Judged rank for performance		Overall efficiency index		Final Criterion ranks	
	z Score	Rank	Score	Rank	Combined	Final
30	180.58	1	3.416	4.0	5.0	1.5
82	98.05	3	3.425	2.0	5.0	1.5
111	65.85	9	3.442	1.0	10.0	3.0
58	81.43	4	3.392	6.5	10.5	4.0
129	68.02	8	3.404	5.0	13.0	5.5
80	59.80	10	3.420	3.0	13.0	5.5
83	111.09	2	3.366	11.5	13.5	7.0
5	34.05	16	3.392	6.5	22.5	8.5
3	68.78	6	3.352	16.5	22.5	8.5
72	68.67	7	3.352	16.5	23.5	10.0
63	79.50	5	3.309	21.0	26.0	11.0
112	45.97	13	3.360	14.0	27.0	12.0
109	39.04	15	3.361	13.0	28.0	13.0
60	32.13	18	3.366	11.5	29.5	14.0
73	25.30	22	3.388	8.0	30.0	15.0
113	29.12	19	3.356	15.0	34.0	16.0
104	21.28	26	3.374	10.0	36.0	17.0

TABLE VI

SCORES AND RANKS OF LEADERSHIP EFFECTIVENESS CRITERIA

Subject code	Judged rank for performance		Overall efficiency index		Final Criterion ranks	
	z Score	Rank	Score	Rank	Combined	Final
20	52.98	12	3.294	26.0	38.0	18.0
24	44.94	14	3.296	25.0	39.0	19.0
88	56.88	11	3.275	31.0	42.0	20.0
40	1.21	36	3.376	9.0	45.0	21.0
119	19.49	27	3.336	19.0	46.0	22.0
32	27.90	20	3.277	30.0	50.0	23.0
47	27.52	21	3.274	32.5	53.5	24.0
36	1.47	35	3.350	18.0	53.0	25.0
95	21.67	25	3.282	29.0	54.0	26.5
2	1.95	34	3.316	20.0	54.0	26.5
27	33.76	17	3.242	44.5	61.5	28.0
93	22.90	24	3.254	38.0	62.0	29.5
7	-4.39	38	3.300	24.0	62.0	29.5
118	14.88	28	3.268	36.0	64.0	31.0
117	24.35	23	3.246	42.0	65.0	32.0
131	11.05	29	3.250	41.0	70.0	33.0
25	-7.08	39	3.266	37.0	76.0	34.0
75	-28.09	44.5	3.274	32.5	77.0	35.0

TABLE VI

SCORES AND RANKS OF LEADERSHIP EFFECTIVENESS CRITERIA

Subject code	Judged rank for performance		Overall efficiency index		Final Criterion ranks	
	z Score	Rank	Score	Rank	Combined	Final
48	-25.37	43	3.269	35.0	78.0	36.0
91	-28.35	46	3.270	34.0	80.0	37.0
11	3.79	32	3.230	49.0	81.0	40.0
55	-45.18	53	3.283	28.0	81.0	40.0
87	-54.26	58	3.301	23.0	81.0	40.0
108	-46.46	54	3.286	27.0	81.0	40.0
14	-54.58	59	3.302	22.0	81.0	40.0
56	-2.80	37	3.236	47.0	84.0	43.0
50	-19.64	42	3.243	43.0	85.0	44.0
124	2.55	33	3.204	54.0	87.0	45.0
10	-28.09	44.5	3.242	44.5	89.0	46.0
42	6.60	30	3.170	59.5	89.5	47.0
115	5.55	31	3.168	61.0	92.0	48.5
35	-8.44	40	3.214	52.0	92.0	48.5
44	-14.86	41	3.209	53.0	94.0	50.0
78	-53.30	56	3.252	39.5	95.5	51.0
37	-39.25	50	3.226	51.0	101.0	52.0

TABLE VI

SCORES AND RANKS OF LEADERSHIP EFFECTIVENESS CRITERIA

Subject code	Judged rank for performance		Overall efficiency index		Final Criterion ranks	
	z Score	Rank	Score	Rank	Combined	Final
136	-46.61	55	3.230	49.0	104.0	53.0
134	-70.11	65	3.252	39.5	104.5	54.0
53	-53.54	57	3.230	49.0	106.0	55.0
70	-65.84	61	3.241	46.0	107.0	56.0
97	-32.46	48	3.170	59.5	107.5	57.0
51	-43.72	52	3.182	56.0	108.0	58.0
18	-28.79	47	3.134	63.0	110.0	59.0
116	-36.72	49	3.127	64.0	113.0	60.0
105	-40.88	51	3.114	65.0	116.0	61.0
33	-58.91	60	3.171	57.5	117.5	62.0
135	-67.91	63	3.171	57.5	120.5	63.0
69	-98.91	68	3.186	55.0	123.0	64.0
12	-66.74	62	3.152	62.0	124.0	65.0
17	-69.19	64	3.097	67.0	131.0	66.0
76	-74.65	66	3.112	66.0	132.0	67.0
21	-76.35	67	3.020	68.0	135.0	68.0

TABLE VII

RELATIONSHIPS OF VARIOUS LEADERSHIP MEASURES

Relationship Tested	Statistic	t	Significance
Hypothesis 1 ASo vs. RTC criterion	rho -.041	.333	
Hypothesis 2 Lambda vs. RTC criterion	rho +.076	.619	
Hypothesis 3-A Lambda vs. L score	rho* .004	.032	
Hypothesis 3-B RTC criterion vs. L score	rho* .163	1.344	.20

*rho corrected for ties (per formula 9.4, Siegel.)

The second hypothesis tested the relationship between leadership effectiveness in large groups, as compared to small groups. Lambda is the measure of leadership effectiveness attained in small groups. The relationship was tested by comparison of lambda scores to the performance criterion scores or ranks by means of rho, corrected for ties. No relationship was expected between these two measures of leadership in contrasted group situations. None was demonstrated, and hypothesis 2 is therefore supported.

This finding does not agree with Bass'. He based his assumption of the validity of lambda as an index of leadership on the relationship which he demonstrated between lambda and external criteria of leadership. Such an assumption cannot be extended to leadership as demonstrated by recruit company

commanders. The evidence here makes no clear case for or against the validity of lambda as a leadership index, at least for small groups. Yet, by inference, the outcome here lends support to the situational concepts of leadership functions and identification. That is, the individual's leadership effectiveness apparently varies with the situation.

It will be recalled that in the third hypothesis our conception shifts somewhat. We now discuss leadership measures based on the trait approach to leadership. A measurement method of considerable apparent flexibility was employed, one which was purported to provide ease of relating the measurement to the criterion situation. First, a replication of Cattell and Stice's comparison of the specification equation index of leadership (based on the 16PF test) to emergent leadership in small groups (as measured by lambda) was attempted. No relationship was demonstrated between the experimental measures of leadership as proposed by Bass (lambda) and by Cattell (L_s score) in this sample of naval recruit company commanders.

This failure to demonstrate any relationship between the two measures of leadership, lambda and L_s, cannot be attributed to differences in group sizes or situations, as was the demonstration of no relationship between large and small group measures in hypothesis 2. Both of these measures, lambda and L_s, are represented as small group leadership measures. However, one, lambda, is obtained as a function of the group processes themselves. The other, L_s, is derived from measures of personality traits obtained independently of the group as a group. That is, L_s expresses individual differences as a function of test response behavior, while lambda is an expression of an individual's participa-

tion in a process inherent in the group. The predictive measure, based on individual differences, failed to predict the index of the situational process. Definitive or generalized negative statements about the relationship of the two measures are of course precluded or limited by the lack of significance of the finding.

It may be that the specification equation taken from the manual of the 16PF test[174] is based on the longer form of the test (Forms A and B combined). If so the L equation may lose efficacy when based on Form C 16 PF scores, as was done here. However, the test authors do not specify what form of the test was used in the derivation of the specification equation.

Whatever the cause may be, it must be acknowledged that personality traits as measured on the 16PF test (Form C), and expressed in Cattell's specification equation for L, are not associated with the performance of company commanders in terms of their relative effectiveness as emergent leaders in problem solving groups. Thus, not only does it seem rather clearly indicated that small group leadership measures cannot be used successfully in the identification of large group leaders, but considerable doubt also is cast upon the reliability, if not the validity, of the experimental measures of leadership as it occurs in informal discussion groups.

Still pursuing the specification equation method of predictive selection of leaders, further tests of the third hypothesis beyond those in the original experimental design were undertaken. Specifically, it was attempted to key the

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[174]Cattell and Stice, Handbook for the 16PF, p. 38.

16PF test to the two criterion situations--the large and small groups using the final criterion rank and the lambda score against which new criterion keyed specification equations scores, L, would be compared.

The relationship was tested by computing correlation coefficients for each of the factors of the 16PF first with the lambda scores and then with the judges' ratings of company commanders performance characteristics.

Turning first to the small group and the lambda index of relatively effective leadership. The scores on all factors of 16PF were correlated with the lambda scores for one half of the sample of sixty-eight. The sample of subjects was split by an odd-even sorting of the individuals according to the order arranged by lambda ranks. The traits were first correlated with the lambda scores of the odd ranked subjects by computation of a rho (corrected for ties) according to the formula given by Siegel (9.4).[175] It was intended to derive a specification equation for L in the small group situation using the obtained correlations to weight the actual 16PF scores of the thirty-four subjects comprising alternate half of the total experimental sample.

The judges' rankings were selected as the basis for this correlational analyses regarding them as a reliable appraisal of individual performance related to, but different from, the criterion score, CEI.

Next, personality traits as related to judged efficiency in training were examined. Consider that the judges' rankings were assessments introduced into the experimental situation and the CEI score is based on assessments, objective

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[175] Siegel, Nonparametric Statistics, p. 210.

and quantified, which are internal to the situation in which performance was being predicted. In other words, the judges' rankings are not a routine evaluation or function within the criterion situation. However, the OEI score is inextricably related to the company commander's effectiveness with recruits in training, and to his occupational reputation in the command. Also, in the company commander's permanent personnel records this achievement is indirectly reflected in his proficiency marks as a senior petty officer and career Navy man.

The intention was to obtain the correlation coefficients between the judged rankings and the various personality factors, and then use these to weight the standard (sten) scores which subjects obtained on the Sixteen Personality Factor test to obtain an L score which could then be correlated with the alternate criterion score, OEI.

The coefficients obtained (r= rho corrected for ties) are reported in Table VIII. While considerably different from the zero order correlations obtained in the foregoing tests of hypotheses, like the coefficients obtained for the relationship of lambda and the Sixteen Personality Factor traits, they still do not attain sufficient statistical significance to warrant use in the specification equation procedures for predicting criterion performance. The empirical approach, yielding results of limited reward, narrows our considerations of the explanations of the negligible findings of the study up to this point, at least as regards the Sixteen Personality Factor test to the matter of reliability of the test itself.

The demonstrations here justify assuming the criteria of the study are

valid and reliable. An instrument or method of any noteable reliability, if empirially keyed to these criteria, should show a considerable degree of association with the two forms of criteria. It was attempted to relate the factors of the Sixteen Personality Factor test first with the lambda scores and then with the judges' ratings of company commanders performance characteristics.

The results of the correlational estimates of the association between the specific traits and the lambda rank scores is shown in Table VIII. One factor, Trait A, (aloof vs. warm, outgoing) yielded a significant correlation (-.403, significant at .01 leval of confidence) with the lambda rank score. Significant correlations were obtained for two other pairs of factors; one at the .10 level of confidence--factors Fr_S=-.299 (glum, silent vs. enthusiastic) and Gr_S=+.325 (casual vs. conscientious); and one pair at the .20 level of confidence--factors Ir_S=+.275 (tough vs. sensitive), and Mr_S=-.225 (conventional vs. eccentric).

The arrangement of ranks for this correlational computation were such that a rank of one on lambda indicates a score for highly effective relative leadership, whereas a rank of one on the personality factor, due to the arrangement of sten scores, indicates a low sten score. Thus a negative correlation, such as in A and M factors, indicates that high lambda ranks are related to high sten scores. The reverse applies for a positive rho--low lambda scores are related to low 16PF scores. This should be noted carefully when referring to the dyadic descriptions for the factor interpretations as given in Appendix VI.

These indications, then, allow the following description of senior naval

petty officers emerging as leaders in small, problem solving groups. According to the test author's interpretations of the A factor on the 16PF[176] such an individual shows a definite but substantial tendency to be good-natured, easy-going, ready to cooperate, attentive to people, soft-hearted, kindly, trustful, adaptable; he seemingly enjoys dealing with the people in the group, and the social impressiveness involved in the situation; he is likely to contribute to the formation and activity of the group, he is probably unafraid of or unconcerned about criticism of other members of the group; and though emerging as a leader in small discussion groups, he is perhaps less dependable in precision work and in obligations. With considerable less confidence we can expect that the small group leader will also appear (by factor F) to be generally enthusiastic for the procedures in the group. His achievement of a degree of leadership is probably facilitated by the possibility that he would be cheerful, talkative, frank, expressive, quick, alert and unperturbable. Experience has shown that individuals tending to score high on this factor, as is suggested for the emergent leader, also frequently are chosen by others as a leader.

Repeating the suggestion of a lack of self-consciousness and spontaneity is the expectation that (by factor M) the emergent leader manifests a lack of

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[176] Handbook for Form C, p. 14. This interpretation of the relationships demonstrated for the various personality factors is paraphrased from the descriptions of the meanings given the various factors by the authors of the 16PF test. These interpretations are taken from the test manual, and are shown in entirety for all traits in Appendix VI.

conventionality and concern, is somewhat egocentric, sensitive and imaginative. He may be emotionally demonstrative and irresponsible, impractical and undependable, and (perhaps because of this) tend to be rejected in group situations. These interpretations are difficult to explain in terms of the known circumstances surrounding the emergent leaders so described. Considering the low order correlation and its associated level of confidence, it is prudent to say no more than the definite but limited likelihood that the emergent leader is somewhat less intimidated by surroundings than others, that his egocentricity may motivate him to be the leader, to be the focal individual in a small group, and to use imaginative approaches to the group and its procedures. This would be in accord with the findings of Carter, et al[177] about emergent leaders' characteristics. But the confidence with which we can accept any supposition about emergent leaders and the <u>eccentric</u> end of the M factor scale is admittedly quite limited.

Similarly interpretive caution must be used in considering the demonstrated relationship between relatively ineffective emergent leadership and the personality trait (factor G) labeled "casual, weakness of character." A low scale score on this factor attributes the characteristics of being fickle, undependable, irresolute, unsteady, quitting, and sometimes demanding, impatient, indolent, obstructive and lacking in internal standards. This seems to fit what common sense would tell about the less effective leader in a small social group. The only alternative speculation which seems plausible is that the type

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[177]Browne & Cohn, p. 103.

of low ego-strength individual depicted would likely show response to the permissiveness of the leaderless discussion manifesting his tendency to be irresolute, quitting, indolent, impatient and obstructive.

The last of the significantly correlated personality traits in emergent, effective leaders is that of a certain toughness (Factor I). This tendency is characterized by a manner which is practical, realistic, masculine, independent, responsible, but "uncultured; some situations prompt this type of individual to become phlegmatic, hard, cynical and smug. He has a "no-nonsense" approach to things. Such a person is not likely to show up as an effective leader in a small group discussing problems which are hypothetical, more or less ambiguous or which do not appear on the surface or proximately to be meaningful. He is immune to the social stimulation, and interpersonal exchange, and thus would not be as likely to participate as, for example, the warm, outgoing and the enthusiastic, surgent types.

Thus, the correlational analyses of the relationships between ranks for the lambda scores and the 16PF factor scores among the experimental population of this study fail to establish a sound basis for confirming Cattell's contentions about the L score for identifying leaders in small groups. However, the small but definite relationships statistically demonstrated for five of the traits, and particularly the single substantial relationship support the face validity of the identification of emergent leaders by personality traits.

Regrettably, out of thirty-two possibilities for correlations of the personality traits with criteria, only one showed sufficient statistical probability of being other than a chance event. Thus the specification equation

TABLE VIII

THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND RELATIVE EFFECTIVENESS OF SMALL GROUP LEADERSHIP

Sixteen Personality Test Factor	Correlation Coefficient (r_s)	t
A. Aloof vs. Warm, outgoing	-.403	2.49***
B. Dull vs. Bright	+.070	.39
C. Emotional vs. Mature	+.143	.89
E. Submissive vs. Dominant	+.084	.470
F. Glum, silent vs. Enthusiastic	-.299	1.77**
G. Casual vs. Conscientious	+.325	1.94**
H. Timid vs. Adventurous	+.177	1.02
I. Tough vs. Sensitive	+.257	1.50*
L. Trustful vs. Suspecting	-.043	.24
M. Conventional vs. Eccentric	-.225	1.312*
N. Simple vs. Sophisticated	-.201	1.161
O. Confident vs. Insecure	-.035	.198
Q_1 Conservative vs. Experimenting	-.028	.158
Q_2 Dependent vs. Self-sufficient	+.013	.072
Q_3 Uncontrolled vs. Self-controlled	+.141	.891
Q_4 Stable vs. Tense	-.146	.835

***Significant at the .01 level of confidence, df=32, two tailed test.
**Significant at the .10 level of confidence, df=32, two tailed test.
*Significant at the .20 level of confidence, df=32, two tailed test.

procedure statistically was not warranted for predicting leadership in small discussion groups as measured by lambda.

Proceeding now to the results of testing Hypothesis 3-B it is seen in Table IX that coefficients of correlation for the relationship between personality traits and judged efficiency of performance were all found to be of slight to negligible magnitude, and only five approached the range of notable statistical significance. Of these five, two were positively related to the criterion--factors A, aloof vs. warm, outgoing and Q_3, uncontrolled vs. self-controlled. The remaining three, factors G (casual vs. conscientious), M (conventional vs. eccentric), and N (simple vs. sophisticated) were negatively correlated with the criterion. On the basis of these indications, and within the demonstrated limits of statistical confidence some notion is gained of the personality traits of relatively effective leaders, as identified on the 16PF and by judgment of superiors, respectively.

It is suggested that the more effective leader, as judged by superiors, demonstrates control of his emotions and general behavior, consideration for others, and what is commonly termed "self-respect"; occasionally obstinacy may occur. This trait of high self control is associated in other situations with leadership effectiveness, and so it is not surprising that at least some similar association appeared in this sample of subjects.

In this study there was obtained a comparable indication that the effective formal leader of recruit companies undergoing training is also warm and outgoing as is his counterpart in the small discussion group. The description given above for the A factor related to small group leadership applies

here as well. The evidence given by Cattell that this factor is selective of good teachers may explain why it is associated with effectiveness of leadership in each of these situations. This teacher identification is based on the interpretation of generosity and flexibility in personal relationships, and on general social agreeableness. There is no clear argument or evidence that this trait would be foreign to the training leader of naval recruits, though it does not fit the personality traits expected of the assumed authoritarian leader in these large groups, the recruit companies. To this extent, if we may infer persuasion from this sociable and pleasant manner, Bass' notations of the relationship of leadership to influence are also demonstrated.

Of the remaining personality traits approaching statistical significance, it is found that the three are negatively associated with leader effectiveness. Interpretively, they offer no contradiction to the statistically indicated relationship. Taken together they give a picture of a rather ineffectual and inadequate person with little impact on his surroundings. According to factor labels and interpretation, it could be expected that the less effective leader would noticeably tend to be a conventional, practical conformist, who is rather narrowly correct and unimaginative (in contrast to the flexible social role of the effective teacher and training leader noted above!). Rounding out the picture it would be likely that this less effective leader also inclines to be casual, even weak and undependable, irresolute, quitting--thus lending little of himself to a situation. But when things did not go well he would also be the type to be demanding of others, impatient, indolent and obstructive with few internal standards for himself.

Though not confidently established by the evidence of this analysis, even at the minimally suggestive level of the relationships for the factors just reviewed, it would not be surprising to find the effective leader possesses ego-strength supporting maturity and stability, and a capacity for maintaining high group morale, as well as being self sufficient (independent, resolute, and making decisions and taking action on his own).

While these measured relationships may be statistically negligible by usual standards, brief descriptions of the traits which are more suggestively associated with leader effectiveness than others are compatible with expectations. They fit common sense expectations as well as types of behavior theoretically associated with the appointed, authoritative, leader in large formal groups. Departures from the rigid stereotype of such a leader are readily understandable in terms of knowledge about general psychology and personality dynamics, much in the manner of Bass' theorizing, as briefly suggested in the comments accompanying the above interpretive summaries.

It is disappointing that there is no demonstration of relationships by more acceptable evidence than the low order correlations for leader trait assessments similar to results of many other studies. However, they are neither impressively greater or less than others' results, according to the summary by Mann, as noted earlier.

Moving on to the next and last hypothesis a very special inquiry into the understanding of leader traits and behaviors was conducted. The hypothesis, as stated, expresses the expectation that, given clear pictures of leader types, extrapolating from research findings on the effectiveness

TABLE IX

THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND SUPERIORS' JUDGMENTS OF RELATIVE EFFECTIVENESS OF LEADERSHIP PERFORMANCE

Sixteen Personality Factor Test Trait	Correlation Coefficient (r_s)	t
A. Aloof vs. Warm, outgoing	-.143	1.39**
B. Dull vs. Bright	+.009	.073
C. Emotional vs. Mature	+.148	1.215
E. Submissive vs. Dominant	+.037	.323
F. Glum, silent vs. Enthusiastic	+.114	.932
G. Casual vs. Conscientious	-.178	1.468**
H. Timid vs. Adventurous	-.022	.181
I. Tough vs. Sensitive	-.009	.127
L. Trustful vs. Suspecting	+.001	.006
M. Conventional vs. Eccentric	-.181	1.494**
N. Simple vs. Sophisticated	-.167	1.388**
O. Confident vs. Insecure	-.071	.578
Q_1 Conservative vs. Experimenting	-.014	.114
Q_2 Dependent vs. Self-sufficient	+.127	1.028
Q_3 Uncontrolled vs. Self-controlled	+.190	1.572**
Q_4 Stable vs. Tense	-.003	.027

**Significant at the .20 level of confidence, df=32, two tailed test.

of leaders and groups, the personality traits of these leaders could be predicted. It was also expected, of course, that the traits would discriminate to a degree between the more and less effective leaders.

The expectations expressed in this hypothesis assume that the extreme scores on the Assumed Similarity scale, derived from ratings of perception of two hypothetical other persons, are usually associated with similar extremes of leader effectiveness. There is also the assumption that specialists (in both military occupations and the behavioral sciences) can discriminate among the various personality traits which contribute to leader effectiveness.

Thus, we are not only testing the interpretive significance of the ASo, but also the relevance of the Sixteen Personality Factor personality traits for describing leader behaviors.

The judged scores on the Sixteen Personality Factor scales for each factor were gathered from the twenty specialists, mean scores computed for each of the factors for both the effective and ineffective leader profiles. Also, twenty-five percent of the subjects were taken from both extremes of the range of ranks according to their ASo scores, and means of the trait scores for the low ASo-effective leader and for the high ASo-ineffective leaders were also computed.

The difference of estimated personality trait profiles of effective (low ASo) and ineffective (high ASo) was tested by the Wilcoxon matched-pairs signed ranks test. Table X shows the array of means for the various traits, and the results of the Wilcoxon test.

The results of the test (T=40, N-16) exceeded the value allowed for

rejection of the null hypothesis. Thus, H_0 must be accepted, and it is concluded that judged personality traits of effective and ineffective leaders do not differ more than would be expected by a chance alone. This finding indicates that the personality traits of effective and ineffective leaders (as used in the Sixteen Personality Factor) cannot be differentially predicted on the basis of leader type descriptions associated with extremes of psychological distance and interpersonal attitudes. The importance of this finding is theoretical. Serious doubt is raised about the ability of others to agree on discrimination of the traits and behaviors desirable in, and which contribute to the performance of, the effective or ineffective leader. This finding also may point to a possible cause of the need for use of sociometric analyses in conjunction with the Assumed Similarity scale. These results prompt doubts concerning the association of certain leader types with leader effectiveness, as also do the findings of hypotheses one and three of this study.

It is known that the ASo score alone does not discriminate between leaders of effective and ineffective groups. Thus it is reasoned that judges, assuming the extremes of effectiveness and the behavior typical of these degrees of effectiveness, could present a profile of personality traits to which such behavior could normally be attributed. However, the failure of these traits as judged to discriminate between extremes of effectiveness as indicated in the finding being discussed, weakens the logic of any brief held for the leader trait and throws some weight of conviction on the side of the situation approach to leadership.

To answer part of this speculation the finding obtained by the testing of the null hypothesis for the arrays of mean trait scores for the actual high and low ASo scorers among the subjects of the study is reported in Table IX. The data for these extremes of our leaders sample again fail to allow rejection of the null hypothesis. Thus, accepting H_0, we conclude that the differences between the various traits of the two groups is no greater than would be expected by chance. It does not appear that high and low ASo scorers (designated as ineffective and effective leaders, respectively, on the basis of those ASo scores) reflect any significant difference of personality traits as profiled on the Sixteen Personality Factor scales.

The question remains whether or not this lack of significant differences of traits to appear between good and poor leaders may be due to a lack of relationship between attitudes as measured by ASo and 16PF test measures of personality traits. If so, perhaps the traits of leaders who actually are effective or ineffective might be different.

One answer to this question was sought and a further investigation was made of this failure to find differences in personality traits as profiled on the Sixteen Personality Factor factors for good and poor leaders. A comparison was made of the mean Sixteen Personality Factor scores for all factors for the top and bottom twenty-five percent of the subjects according to the ranks assigned by the objective criterion score, the OEI (T=55, N=15). Again, the null hypothesis could not be rejected, and the groups appeared to show no difference greater than would be expected if influenced by chance alone. It is thus demonstrated that, on the basis of the overall traits patterns (on the

Sixteen Personality Factor test) there is no essential difference between the more effective leader and the less effective leader.

The next and concluding chapter will present a summary and the general conclusions of the study.

TABLE X

MEAN FACTOR SCORES ON THE 16PF TEST FOR SUBJECTS IDENTIFIED AS EFFECTIVE OR INEFFECTIVE LEADERS BY THREE METHODS

16PF Trait	Judged Effectiveness		Assumed Similarity Scores		Leader Overall Efficiency Index	
	High	Low	Low	High	High	Low
A	2.9	8.1	4.9	3.6	4.5	3.5
B	7.5	6.2	5.3	5.5	4.8	5.3
C	7.3	5.1	5.4	3.7	4.9	4.8
E	8.7	2.8	4.8	5.2	5.6	5.6
F	6.5	6.1	4.6	4.1	4.9	3.9
G	8.6	4.5	5.5	5.6	5.6	6.1
H	5.6	5.4	4.8	3.5	4.9	4.0
I	3.5	7.0	2.9	4.7	3.9	4.0
L	6.2	4.4	6.4	5.9	5.6	5.7
M	4.1	4.2	5.2	5.0	4.8	6.1
N	7.9	4.5	4.5	4.5	4.5	4.7
O	3.5	6.4	5.6	6.9	5.9	6.3
Q_1	5.8	5.1	5.3	5.1	5.1	4.9
Q_2	8.2	2.4	6.4	6.6	6.4	6.1
Q_3	7.8	5.1	5.5	5.3	6.2	4.8
Q_4	5.0	5.6	5.2	6.5	5.9	6.1
Wilcoxon Test	T=40	N=16	T=50	N=15	T=55	N=15
H_o	Accepted		Accepted		Accepted	

CHAPTER V

SUMMARY AND CONCLUSIONS

Research in leadership has focused increasingly on small group situations. Results of some of this research have led to the derivation of methods for assessing leadership and identifying leaders. Some of these procedures are designed principally for experimental use. Others are presented with no specific limited use mentioned.

This study was an attempt to test three types of measures of leader effectiveness on a sample of subjects, senior petty officers of the United States Navy. The routine duties of these subjects cast them in the role as appointed leader of a formally organized large group. Sixty-eight experienced commanders of companies of naval recruits undergoing indoctrination training were studied by means of an Assumed Similarity scale, a personality test comprised of sixteen factorially identified factors or traits, and participation in a leaderless or informal problem-solving discussion group.

The results of subjects' participation in the experimental phase of the study were compared to certain criterion scores of their performance as leaders and company commanders.

Correlational comparisons were then made to test the various relationships among these experimental and criterion data.

The general question of the study was to investigate the possible application of leadership theory and experiments to a relatively constant

situation in which leadership is readily identifiable by criteria intrinsic to the existing situation. The secondary aspect of the investigation was to turn attention to the identification of leaders through leader traits--admittedly an old pursuit, but neverthless, regarded by some as too soon abandoned. It was felt that there was a strong possibility of discovering leader traits specific to a regimented, formally organized leader task, which is repeated by the leader individuals, and in which effectiveness was readily and more or less objectively measured.

The study was also an ambitious attempt to retrieve leadership, or at least leadership assessment, from the realm of social process and reinstate it as a psychological process attributable to the individual. This mission or goal was prompted by a practical problem presented to the professional staff of a U. S. Navy mental health services installation. That task is to make predictions of leader effectiveness on the basis of psychological evaluation by interview.

To test the relationships of the various measures to effectiveness of leadership, four hypotheses were formulated. These are given below with a brief statement of the results from testing them.

Hypothesis 1. The degree of effectiveness of leadership in the formal, natural, leader role, measured by combined achievement scores and superiors' ratings of performance, is directly related to the habitual attitude of psychological distance, as measured by low ASo scores.

Results. There was found no evidence of a relationship between the characteristic attitude of psychological distance as measured by ASo scores and

the effectiveness of commanders of companies of naval recruits undergoing indoctrination training.

From the evidence obtained, neither the stereotype of the business-like, hard headed, extrapunitive leader or his opposite appear to be significantly associated with the type of leader effectiveness observed in naval petty officers acting as training leaders of naval recruits.

Hypothesis 2. Individuals attaining greater degrees of effectiveness as formally appointed leaders in large groups do not tend to emerge as leaders showing effectiveness (influence) in small, informal leaderless groups. That is, large formal groups differ from small, informal groups in regard to individuals identified as leaders by their degree of effectiveness.

Results. The evidence obtained indicates that the type of leadership emerging in small, informal discussion groups is not significantly related to relative effectiveness of leadership as demonstrated by individuals in the natural, formal leadership situation. While this was to be expected, the theory and procedures for measuring leadership by lambda, as proposed by Bass, had seemed to offer possibility of a practical means of assessing potential leaders for the duties of a company commander. Regrettably there was no demonstration of even a minimum relationship on which to base any situation-keyed method as small group leadership and large group leadership were assessed in this study. Bass' finding of a relationship between small group leadership effectiveness and criteria external to the group was not corroborated.

The third hypothesis was subdivided into two parts.

Hypothesis 3-A. On the basis of personality traits, as measured by the

Sixteen Personality Factor questionnaire, the relative effectiveness of leadership demonstrated in small, informal, artificial groups can be predicted. That is, lambda, the index of relative effectiveness of leadership demonstrated in small, informal discussion groups can be predicted by L, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Results: The evidence obtained in testing this hypothesis does not bear out the strong claim of the author of the specification equation for L concerning the remarkable potency of this method for identifying small group leadership.

Specifically, the personality traits of senior naval petty officers do not provide an adequate basis for predicting their relative effectiveness as emergent leaders in small, informal, problem-solving groups.

Personality traits of senior naval petty officers, as measured on the Sixteen Personality Factor test were not demonstrated to be associated with their performance as leaders in small discussion groups. However, the trend of statistical evidence is such that the leaders of groups tend to show personality characteristics logically commensurate with their function as an emergent leader. With considerable confidence the emergent leader can be described as a warm and out-going person who deals with other group members enjoyably. Readily adapting to the socially impressive situation, he makes a significant contribution to the group activity and progress. It can also be expected, though with less confidence, that emergent leaders among senior naval petty officers will be distinguished by their enthusiasm, acceptability

to others as a leader, and generally apparent maturity and ego-strength.

There is sufficient evidence to suspect that the least effective leader in small discussion groups would be found to be a practical conformist, anxious to appear right to the point of being narrowly correct and unimaginative, preferring a "no-nonsense", independent, phlegmatic manner of business.

Hypothesis 3-B. On the basis of personality traits, as measured by the Sixteen Personality Factor questionnaire, the effectiveness of leadership demonstrated in large, formal, natural groups can be predicted. That is, the index of leadership effectiveness in large, formal, natural groups, based on a combination of achievement scores and superiors' ratings of performance, can be predicted by L, a score derived by a sequential equation based on personality traits as measured on the Sixteen Personality Factor questionnaire.

Results. While not conclusive (intterms of statistical significance) concerning a personality description for effective or less effective large group leaders, the results for this hypothesis suggest some characteristics which seem to be associated logically with certain degrees of relative effectiveness.

From the findings in Hypothesis 3-B, it appears that the effective formal leader, as defined in this study and its subjects, has manifest control of his emotions and his behavior, and is self-respecting. He likely shows warmth toward others, and remains flexible in interpersonal relationships. The less effective leader among our subjects generally has little impact on his surroundings, and thus would not favorably distinguish himself as a formal leader. He would perhaps also show some psychological ineffectuality such as

this in other areas of function, lacking the inner resources for, and/or little inclined toward, imaginatively or constructively deviating from the minimal norm, or from what he thinks is expected of him. He is not a persevering person.

Hypothesis 4. Personality trait patterns, as measured on the Sixteen Personality Factor questionnaire, can be predicted by extrapolation from the interpretation given ASo scores. That is, given a very high or very low ASo score, and following interpretations given these scores by Fiedler, the presence of certain personality traits as measured by the Sixteen Personality Factor questionnaire can be predicted.

Results. Differences in the traits of effective leaders from those of ineffective leaders were tested. The extremes of effectiveness were those designated by descriptions of leader types, by extremes of ASo scores, and by an objective measure of the individual's efficiency as a training leader. Tested by the Wilcoxon matched-pairs signed rank test, these data showed no evidence of differences between the personality traits for the typically effective or ineffective leader significantly greater than could occur by chance. This lack of discrimination was consistent whether the personality traits associated with extremes of typical effectiveness, or expected effectiveness were designated by a group of judges, or by actual ASo scores or by the score index of overall efficiency of leadership as a company commander.

The evidence from testing of this fourth hypothesis leads to the following conclusions. First, among specialists who actually assess the effectiveness of leaders and the personality traits which contribute to their relative

effectiveness there is insufficient agreement on the judged personality traits to discriminate between the leaders showing extremes of relatively greater or lesser effectiveness. Secondly, it appears possible that the interpretive meaning as regards the behavior of leaders which is attributed to ASo extreme scores is not corroborated by any differentiation of profiles of personality traits of individuals actually obtaining extreme ASo scores. Thirdly, however, the personality trait profiles of effective and ineffective leaders so judged by objective criterion scores of efficiency, are not distinguished more than by chance. Therefore, it is suggested that the personality traits of company commanders, as measured on the Sixteen Personality Factor Test, are not associated significantly with more or less leadership effectiveness.

Very briefly, then, our findings with the various hypotheses are these.

1. There was no relationship demonstrated between the attitude based on interpersonal perceptions as measured by the Assumed Similarity scale and the assessed effectiveness of the subjects as formal leaders of large groups. The hypothesis was not supported.

2. No relationship was demonstrated between leader effectiveness in small groups and in large groups. Our hypothesis was supported.

3. Between personality traits and leader effectiveness in large and small groups the relationship demonstrated ranged from none at all to only very modest trends. While the associations shown generally fit common sense expectations, there was not sufficient evidence for use of traits as predictors of leadership. Our hypothesis was not supported.

4. Personality traits do not appear to be an adequate basis for dis-

crimination of the better and poorer leaders when the comparisons are made by actual performance scores, by scales purported to depict attitudes associated with leader effectiveness, or as expected by superiors and informed specialists to be associated with good and poor leader effectiveness. Thus, it appears that these experimental measures of leadership in small groups cannot be applied to leader identification problems in large, natural groups.

One explanation for our negative findings may be that, when a leader functions more as a training leader than the typical, formal leader, the Assumed Similarity scale alone is not sufficient to tap the psychological and social processes associated with effective leadership. His attitudes about preferred co-workers apparently are not pertinent to his conception of behavior appropriate for a warm, out-going training leader. Thus, Fiedler's conclusion that sociometry is a necessary adjunct to the Assumed Similarity scale is probably well justified. Our assumption that the formal leader situation did not require the additional interpersonal sociometry was apparently in error. However, to include the sociometry as Fiedler did was not considered practical in the situation studied here because of the large size and brief life span of the group; also, such an approach has little if any bearing on the search for a leader-selection or performance prediction method. Such <u>in situ</u> methods can't be used to forecast. Clearly then, Assumed Similarity scales, a small group measure, are not appropriate for use in large groups.

Probably one of the clearest reasons for the lack of positive findings can be observed among the findings obtained in testing the fourth hypothesis. Two conclusions are indicated.

First, it was shown that personality traits as measured in this study do not discriminate between the extremes of leader effectiveness. This failure to discriminate held whether traits were associated with leader effectiveness hypothetically, as judged by superiors, or with leader effectiveness expected from test interpretation, ASo extreme scores, or when the traits were tested for association with actual performance achievement, the OEI scores. Thus, it is reasonable to conclude that the good and poor leaders may be a single undifferentiated group personality-wise. We are reminded here of the hypothesis of other investigators that good leaders and good followers are cut from the same behavioral cloth. On a single dimension, they would both be at the extreme opposed to the indifferent, indolent and unproductive individual in the group. That we have failed to differentiate these subjects as to their relative effectiveness of leadership may be that, within the given range, even though their actual achievement can be scaled and judged on a relative basis, the subjects are in certain respects all closely similar. The subjects are, after all, senior petty officers in the Navy who are assumed to have demonstrated proficiency in achievement, advancement, and general adaptation to the military climate. Thus, these men who served as subjects for the study have been advanced in the enlisted ranks at least in part by following orders. They know what is expected of novices in the Navy, and what is necessary to learn to follow well. By imparting this to the recruit in the relationship to him as a training leader, the company commanders are drawing on a reservoir of experience which may be quite common to all of them as senior petty officers.

The second possible conclusion concerns a consideration closer to the actual data by which the fourth hypothesis was tested. The description of leader behaviors which Fiedler offered as an interpretation for extreme ASo scores may involve role behavior which is not tapped by the personality questionnaire.used in this study. That is, the specifically adaptative behavior in an appointed role by which an individual carries out duties and achieves effectiveness may not be tapped by the particular personality questionnaire used in the study.

The study has shown that specific measures of leadership do not appear to be transferable from situation to situation with any expectation that leadership assessment will remain efficient or effective.

Also, it appears that criterion keying of the assessment methods used in this experiment is not possible, particularly for the methods previously devised in small groups. The possibility of identifying psychological traits associated with leadership was not realized by the methods used here, and that it can be done remains doubtful for the studied population.

There remains the general question of the study concerning what contribution there is from the extensive research in leadership to the modern needs of one of the traditionally oldest groups in which leadership is keystone. Experimental measures reported in the literature were tested in a practical situation. Our obtained results indicate a negative response to the question. There appears to be little application for the experimental measures as used in this study.

However, hope is maintained that a narrower study, focusing on measure-

ments of personality traits and characteristics would be more fruitful. Expansion of the population would perhaps protract the range of the OEI scores. As the subjects of this study reflect only a relative degree of effectiveness within the acceptable range, testing prior to experience in the field as a company commander and compared to adequate follow-up data would be preferred. This procedure would obtain data on the least qualified of individuals who may be assigned to leader status. The sample studied did not include those potential company commanders who are disqualified before assignment, nor those who had failed after assignment as a company commander, and were relieved of those duties. If another study were to be undertaken as a follow-up to this one, this writer would find it of interest to utilize personality measurements similar to and including the Sixteen Personality Factor test in this type of restricted, well defined, and more or less standardized situation. For that work, it would be well to include the longer forms (A and B combined, or the A-B-C forms) of the Sixteen Personality Factor test with a larger population.

The study was a rather broad exploration of the relationships of the available leadership assessment methods for use in leader identification, specifically military leaders of a company of men. According to our findings, the socially oriented behavioral sciences have added little of aid for this problem. The approach by means of individual differences has yielded only suggestive results. Though failing short of impressive or even acceptable statistical significance, the suggestive results describing personality traits of variously effective leaders are remarkably close to common sense expectations. Because of this it is contended that the trait method continues to hold

a persisting though faint, promise for trait identification of leaders, particularly when referred to the situation. Better measures of traits surely would be of help in his approach.

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APPENDIX I

A. Directions for rank ordering of company commanders.

B. Descriptions of performance characteristics.

C. Judge's rank order reporting sheet.

RANK ORDER JUDGING OF THE CHARACTERISTICS OF INDIVIDUALS AND THEIR PERFORMANCE

There are many persons in the Recruit Training Command whose duties include a responsibility for the supervision and direction of the performance of company commanders. You and certain others of these persons have been designated to judge the rank order of a number of company commanders with respect to certain characteristics. You are routinely required to evaluate, or to assist in the evaluation of company commanders' performance. Each person so evaluated is compared, under an established or defined standard, directly and in many subtle ways with many or all of his peers. The degree to which each man meets this standard is usually expressed in absolute values or number grades in accordance with the marking systems typically used.

In the task being presented to you now you are to determine the relative degree to which a number of company commanders are like a given characteristic. Each person is now in charge of a company or has recently been the commander of several companies. Names of the men to be considered by you are furnished in alphabetical order. Individuals are to be judged according to the descriptive criteria of an aspect or characteristic considered pertinent to performance as a company commander. These statements will be furnished for each rank ordering to be made.

When you have completed the procedures outlined below the company commander who, in your opinion, exemplifies the positive descriptions to the greatest degree and is most effective in doing so should be in the rank order position of #1.

The next most exemplary company commander, in these same respects, should have been assigned the rank order position of #2.

The person who demonstrates these characteristics or behaviors as well as many or most, but not as well as some, and notably less than those ranked #1, #2, etc. should have been assigned a rank near the middle of the range of numbers.

The individuals to whom these statements apply with less accuracy will be ranked among the lowest numbers, approaching #75.

The individuals whose performance is in least relative agreement, or shows no agreement, with the descriptive criterion statements should have been ranked last — #75.

Even though the last ranked man may, in general, perform adequately or passably as a company commander, the overall ranking implies only that he is relatively less like all the criterion statements regarding the given characteristics of performance than those persons ranked as #1, #2, #35, or even #70.

The instructions given below outline a method to assist you in making these judgements and in arriving at the ranks required. You may be more certain about some judgements than about others, but make the best estimate you can about every individual. EVERY MAN MUST BE ASSIGNED A RANK NUMBER OR POSITION!

Be thoughtful and objective. Draw on your experience and knowledge of the matters and persons being considered. The results are in no way a matter of official record concerning you or the men being ranked or judged. However, the task is fully deserving of your serious attention and sincere effort.

Remember, that the principles operating here are routinely applied in carrying out your regular duties. What you are being asked to do is not new. Comparative judgements of peers and subordinates are an everyday procedure as familiar as it is vital to maintaining the quality of performance in this command or in any similar organization. It is the basis of the task you are about to begin.

Please note. Other personnel here will be performing this same task. Do not discuss these procedures or the results with anyone else at this time. Such communication could adversely affect the information being sought in connection with the research aims of this study in which you are participating. For your interest it is being conducted by a source outside this command. However, this study has the expressed approval of the Commander, Naval Training Center and of the Commanding Officer, Recruit Training Command. Your full cooperation is essential to the successful completion of the study. It is hoped the results may be of value and assistance to the company commander and those responsible for company commanders and their duties.

* * * * * * * * * *

INSTRUCTIONS TO JUDGES FOR RANK ORDER SORTING

At the end of these instructions there is a series of statements about a characteristic of company commanders and/or their performance. Read these statements carefully. Be sure you understand them and are familiar with them. Refer to the statements as often as you like while following the sorting instructions.

You have been given 75 tags, arranged in alphabetical order of the names of company commanders. Sort these 75 tags into five (5) equal piles according to the degree to which the individuals and/or their performance are, in your opinion, like the criterion statements given. The pile at the far left should be the tags of those company commanders who are most like the statements. The next pile of tags should be of the names of men who are more like the statements than most others of the remaining forty men, but somewhat less than those in the first pile.

Each successive pile should contain the 15 tags of the men whom you think are less and less like the statements given as a criterion, until there are FIVE EQUAL PILES of FIFTEEN TAGS EACH. Some piles may not contain exactly 15 tags at first. This is all right. Just continue sorting until each pile contains 15 and only 15 tags.

Next, within each pile arrange the tags in order of the degree of conformity of each to the criterion statements. For each pile the tag on top should show the name of the man among the fifteen who is most nearly like the criterion statements. Each tag beneath that one, in succession, should be that of the man who is slightly less typical of these statements. When the fifteen have been arranged in this order for each pile, set the pile aside and do the same with the remaining piles. Work left to right until all originally sorted piles have been re-arranged in a descending order -- from the man "most like" the statements given (the tag on top) to the tag for the man "least like" the given statements (the tag on the bottom). Then combine the piles in a similar order so that the one man among the 75 who is most like the criterion is named on the

top tag, and his name is followed by 74 others in order of decreasing similarity to the criterion statements for the characteristic being judged.

When you have finished the pile sorting and rank order arranging, then record the identification number on the right hand side of the tags on the Rank Order Sheet. Be sure to record these code numbers in the exact rank order in which you have sorted and arranged the tags. Leave the tags in the sorted and re-arranged order showing your rank order judgements, as recorded. A check for recording accuracy will be possible later.

There are four criterion characteristics in all by which this group of company commanders are to be rank-order sorted by each judge like yourself. You will be contacted again within 24 to 48 hours for the next sorting to be accomplished.

Now, turn the page and commence the sorting procedures.

CHARACTERISTIC A FOR RANK ORDER SORTING

Summary of Instructions. There are three steps to the rank order sorting of the men named on the seventy-five tags furnished you. The rank order sorting is to be based on the criterion statements given below on this page. Review the steps:

1) Sort into 5 equal piles of 15 tags, from left to right, as "most like" to "least like" the criterion statements;

2) Re-arrange the tags in each pile into descending order of similarity to the given criterion statements with the tag of the man having the greatest similarity on top of the pile;

3) Record the code numbers for all tags in the sorted and re-arranged order. Leave the tags in order as you finish.

* * * * * * * * * *

CHARACTERISTIC A: SKILLS IN ORIENTATION

He effectively provides his recruits with a sound basic indoctrination in all areas of military training.

He generally communicates clearly with his recruits and is receptive to their efforts to communicate with him.

He has the necessary patience, enthusiasm and energy to instruct recruits.

He presents instruction material in detail and in a way that does not generate confusion nor require excessive repetition.

He has a certain "know how" in getting his ideas accross so that they become the recruit's "own". The recruits know his specific and concrete requirements and strive to meet them.

He willingly devotes extra time and effort to his company when needed, and gains the desired results.

He has a favorably impressive command presence with respect to his manner, voice and bearing.

He shows self confidence.

In his good performance, attitude and behavior he exemplifies "Mr. Navy" in the recruits' eyes and is a good model for them to follow.

conscientiously to assist the recruits with and to help the marginal recruit.

CHARACTERISTIC B FOR RANK ORDER SORTING

Summary of Instructions. There are three steps to the rank order sorting of the men named on the seventy-five tags furnished you. The rank order sorting is to be based on the criterion statements given below on this page. Review the steps:

1) Sort into 5 equal piles of 15 tags, from left to right, as "most like" to "least like" the criterion statements;

2) Re-arrange the tags in each pile into descending order of similarity to the given criterion statements, with the tag of the man having the greatest similarity on top of the pile;

3) Record the code numbers for all tags in the sorted and re-arranged order. Leave the tags in order as you finish.

* * * * * * * * * *

CHARACTERISTIC B: MATURITY AND ADAPTABILITY

He is emotionally stable and mature, and his behavior is disciplined.

He shows dedication and loyalty to his command and to the U.S. Navy in a way appropriate to and expected of personnel in his billet.

He demonstrates positive motivation in line with the fundamental objectives of recruit training and tailors his efforts toward achieving them.

He uses sound and objective judgement in evaluating individual recruits and their problems.

He properly respects what is expected of him -- that is -- he lives by the book.

He responds to unexpected and problematic situations or individuals with a constructive attitude and a "can do" approach. He takes things in his stride.

Summary of Instructions. There are three steps to the rank order sorting of the men named on the seventy-five tags furnished you. The rank order sorting is to be based on the criterion statements given below on this page. Review the steps:

1) Sort into 5 equal piles of 15 tags, from left to right, as "most like" to "least like" the criterion statements;

2) Re-arrange the tags in each pile into descending order of similarity to the given criterion statements, with the tag of the man having the greatest similarity on top of the pile;

3) Record the code numbers for all tags in the sorted and re-arranged order. Leave the tags in order as you finish.

* * * * * * * * * *

CHARACTERISTIC C: EFFICIENCY IN ORGANIZATION

He sets up internal organization in the company to provide for meeting demands placed on him as its leader and on the recruits as its members in training.

He usually selects the right men for petty officers and utilizes them effectively.

He organizes his company to work effectively for the proper goals.

He knows how to delegate responsibility, and insists on results.

He gets things done as the training program and schedule require.

He provides organizational help (within the company) for the marginal recruit and methods to handle group problems or difficulties in individual development under training.

Discipline problems are handled within the company organization as appropriate and not passed on up the line for others to handle.

He can be relied upon to accomplish administrative details accurately and on time.

[illegible] the marginal recruit.

Summary of Instructions. There are three steps to the rank order sorting of the men named on the seventy-five tags furnished you. The rank order sorting is to be based on the criterion statements given below on this page. Review the steps:

1) Sort in five equal piles of 15 tags, from left to right, as "most like" to "least like" the criterion statements;

2) Re-arrange the tags in each pile into descending order of similarity to the given criterion statements, with the tag of the man having the greatest similarity on top of the pile;

3) Record the code numbers for all tags in the sorted and re-arranged order. Leave the tags in order as you finish.

* * * * * * * * * *

CHARACTERISTIC D: APPROACH TO THE INDIVIDUAL RECRUIT

He is responsible and thoughtful with respect to the welfare of his recruits, and is immediately and sincerely concerned with them and their problems.

He generates positive feelings of security and high morale so that each recruit readily finds his role and can best meet the demands made of recruits.

He can manifest genuine interest in recruits as individuals and still effect good discipline and maintain his role of authority and control.

He imparts a serious attitude about training and the U. S. Navy to the relatively youthful and inexperienced recruit.

He does what is necessary to get each individual recruit to perform best and because of him recruits strive for goals which are the objectives of training.

He is objective with individuals and remains impersonal as to race, creed, color, or geographical region of home residence.

Insofar as it is within his ability to do so, he makes sure all recruits originally assigned to his company graduate with that company. He tries conscientiously to train all recruits well and to help the marginal recruit.

RANK ORDER SHEET

#1_____ #18_____ #35_____

#2_____ #19_____ #36_____

#3_____ #20_____ #37_____

#4_____ #21_____ #38_____

#5_____ #22_____ #39_____

#6_____ #23_____ #40_____

#7_____ #24_____ #41_____

#8_____ #25_____ #42_____

#9_____ #26_____ #43_____

#10_____ #27_____ #44_____

#11_____ #28_____ #45_____

#12_____ #29_____ #46_____

#13_____ #30_____ #47_____

#14_____ #31_____ #48_____

#15_____ #32_____ #49_____

#16_____ #33_____ #50_____

#17_____ #34_____ #51_____

#52_____ #65_____

#53_____ #66_____

#54_____ #67_____

#55_____ #68_____

#56_____ #69_____

#57_____ #70_____

#58_____ #71_____

#59_____ #72_____

#60_____ #73_____

#61_____ #74_____

#62_____ #75_____

#63_____

#64_____

_____
(Judge's Initials and Last Name)

_____
(Rank or Rate) (Billet)

Characteristic Judged A B C D
(Circle One!)

In the numbered spaces above carefully record the codes from the name tags to show the rank order in which you have sorted them regarding characteristic A,B,C, or D.

APPENDIX II

PROBLEMS PRESENTED TO DISCUSSION GROUPS

A. Cities and words problems arranged by teams.

B. Situational problems of recruit training.

C. Work sheet for computation of lambda.

TEAM No. 10 PROBLEM "A"

(Name) (Your Identification Code)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Bristol, Connecticut	( )	( )
Chicago, Illinois	( )	( )
El Cerrito, California	( )	( )
Englewood, Colorado	( )	( )
Springfield, Ohio	( )	( )

When you have completed the rankings as directed turn this sheet face down on the desk and wait quietly for further instructions.

desk and wait quietly for further instructions.

When you have completed the rankings as directed turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 10 PROBLEM "B"

(Name) (Your Identification Code)

Below is the second list of five United States cities. Assign a rank order to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Birmingham, Michigan	( )	( )
Bloomfield, New Jersey	( )	( )
Downey, California	( )	( )
Massilon, Ohio	( )	( )
Valley Stream, New York	( )	( )

When you have completed the rankings as directed turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 10 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Highland Park, Illinois	( )	( )
Huntington Park, California	( )	( )
Irving, Texas	( )	( )
Perth Amboy, New Jersey	( )	( )
Victoria, Texas	( )	( )

When you have completed the rankings as directed turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 10 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used word by similarly entering number 2; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
fade	( )	( )
haddock	( )	( )
ice	( )	( )
rainbow	( )	( )
taxpayer	( )	( )

As before, when you have finished, turn this sheet over and wait quietly for further instructions.

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 10 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
amazement	( )	( )
depth	( )	( )
flint	( )	( )
luxury	( )	( )
unhappy	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 10 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
gem	( )	( )
idealist	( )	( )
jewelry	( )	( )
railing	( )	( )
zodiac	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 20 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used by entering number 2 similarly; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
able	( )	( )
effectively	( )	( )
elegance	( )	( )
generation	( )	( )
ward	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. 20 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word, and so on until all words are assigned a rank position, from the most (1) to least (5), as indicated by the number beside them.

WORD	INitial Rank Here!	Final Rank Here!
brick	( )	( )
hesitate	( )	( )
peach	( )	( )
regulation	( )	( )
wigwam	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

TEAM No. 20 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used word (number 5). Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word, and so on, until all words are assigned a rank position, from the most used (1) to the least used word (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
abbreviation	( )	( )
data	( )	( )
flit	( )	( )
warship	( )	( )
willow	( )	( )

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. 20 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed below alphabetically. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Downey, California	( )	( )
Elmira, New York	( )	( )
Los Angeles, California	( )	( )
Ridgeway, New Jersey	( )	( )
Santa Fe, New Mexico	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

the desk and quietly wait for further instructions.

Lancaster, Ohio	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 20 Problem "B"

(Name) (Your Identification Code)

Below is the second list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Big Springs, Texas	( )	( )
El Cirrito, California	( )	( )
Norwich, Connecticut	( )	( )
Pontiac, Michigan	( )	( )
Rock Island, Illinois	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 20 Problem "C"

(Name) (Your Identification Code)

Below the third set of five United States cities is listed alphabetically. Assign a rank order position to each according to size, from the largest to the smallest (1 to 5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Bellflower, California	( )	( )
Birmingham, Michigan	( )	( )
East Cleveland, Ohio	( )	( )
Hawthorne, California	( )	( )
Lancaster, Ohio	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 30 Problem "A"

(Name) (Your Identification Code No.

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Mishawaka, Indiana	( )	( )
Philadelphia, Pennsylvania	( )	( )
Pontiac, Michigan	( )	( )
Prairie Village, Kansas	( )	( )
Sheboygan, Wisconsin	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

Wyoming, Michigan ( ) ( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

Team No. 30 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position to each city, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Garland, Texas	( )	( )
Meriden, Connecticut	( )	( )
New Britain, Connecticut	( )	( )
Ridgewood, New Jersey	( )	( )
Woburn, Massachusetts	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 30 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Eau Claire, Wisconsin	( )	( )
El Cerrito, California	( )	( )
Gainesville, Florida	( )	( )
Lawrence, Kansas	( )	( )
Wyoming, Michigan	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 30 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently word by entering number 2 similarly; continue until all words are assigned a rank from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
job	( )	( )
nap	( )	( )
observatory	( )	( )
universal	( )	( )
valued	( )	( )

As before, when you have competed the ranking turn this sheet over and wait quietly for further instructions.

writing ( ) ( )

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

rational ( ) ( )

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. 30 Problem E

(Name) (dentification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used word (number 5). Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word, and so on, until all words are assigned a rank position, from the most used (1) to the least used word (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
mash	( )	( )
quit	( )	( )
restrain	( )	( )
widely	( )	( )
writing	( )	( )

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. 30 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used word (number 5). Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word, and so on, until all words are assigned a rank position, from the most used (1) to the least used word (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
abbreviation	( )	( )
halloo	( )	( )
ignorant	( )	( )
joust	( )	( )
rational	( )	( )

As before, when you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. 40 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest — and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Detroit, Michigan	( )	( )
Kingsville, Texas	( )	( )
Madison Heights, Michigan	( )	( )
Muskegon, Michigan	( )	( )
New Britain, Connecticut	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 40 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Garfield Heights, Ohio	( )	( )
Johnson City, Tennessee	( )	( )
Kalamazoo, Michigan	( )	( )
Prairie Village, Kansas	( )	( )
Rome, New York	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 40 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Beloit, Wisconsin	( )	( )
East Detroit, Michigan	( )	( )
Marion, Indiana	( )	( )
Melrose, Massachusetts	( )	( )
Ridgewood, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 40 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used word by entering number 2 similarly; continue until all words are assigned a rank from one to five, from the most used to the least used.

WORD	Initial Rank Here!	Final Rank Here!
accession	( )	( )
observation	( )	( )
tabor	( )	( )
valley	( )	( )
vault	( )	( )

As before, when you have completed the ranking, turn this sheet over and wait quiet for further instructions.

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

landlord ( ) ( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

TEAM No. 40 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
massacre	( )	( )
quit	( )	( )
repose	( )	( )
widely	( )	( )
writing	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 40 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word, and so on until all words are assigned a rank position, from the most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
abstract	( )	( )
backgammon	( )	( )
halloo	( )	( )
hers	( )	( )
landlord	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

TEAM No. 50 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed below. You are to judge them according to their their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest — and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Baltimore, Maryland	( )	( )
East Detroit, Michigan	( )	( )
El Dorado, Arkansas	( )	( )
Kalamazoo, Michigan	( )	( )
Watertown, New York	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

Sheboygan, Wisconsin	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 50 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Clifton, New Jersey	( )	( )
Kingsville, Texas	( )	( )
Poughkeepsie, New York	( )	( )
Reno, Nevada	( )	( )
Santa Rosa, California	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 50 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Bossier City, Louisiana	( )	( )
Lackawanna, New York	( )	( )
Monterey Park, California	( )	( )
Prairie Village, Kansas	( )	( )
Sheboygan, Wisconsin	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 50 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used word by similarly entering number 2; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
darling	( )	( )
gamble	( )	( )
harrow	( )	( )
ulterior	( )	( )
want	( )	( )

As before, when you have finished, turn this sheet over and wait quietly for further instructions.

ravine	( )	( )
recommend	( )	( )
warship	( )	( )
zoologist	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 50 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
ladder	( )	( )
neglect	( )	( )
occasionally	( )	( )
ravine	( )	( )
recommend	( )	( )

TEAM No. 50 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
manila	( )	( )
uncover	( )	( )
safely	( )	( )
warship	( )	( )
zoologist	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 60 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest — and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Buena Park, California	( )	( )
Clifton, New Jersey	( )	( )
Houston, Texas	( )	( )
Panama City, Florida	( )	( )
Sharon, Pennsylvania	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

New Albany, Indiana	( )	( )
Nutley, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM NO. 60 Problem "B"

(Name) (Your Identification Code No.)

Below is the second alphabetical list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
East St. Louis, Illinois	( )	( )
El Dorado, Arkansas	( )	( )
Flourrissant, Missouri	( )	( )
Newburgh, New York	( )	( )
University City, Missouri	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 60 Problem "C"

(Name) (Your Identification Code No.)

The third set of five United States cities is listed alphabetically below. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Bristol, Connecticut	( )	( )
Kingsville, Texas	( )	( )
National City, California	( )	( )
New Albany, Indiana	( )	( )
Nutley, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 60 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used by entering number 2 similarly; continue until all words are assigned a rank from one to five, most to lease used.

WORD	Initial Rank Here!	Final Rank Here!
jag	( )	( )
lightly	( )	( )
race	( )	( )
raindrop	( )	( )
yawn	( )	( )
sheer	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

ulster	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 60 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
enterprise	( )	( )
hen	( )	( )
mash	( )	( )
novel	( )	( )
sheer	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 60 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
mammal	( )	( )
sash	( )	( )
undaunted	( )	( )
unfortunate	( )	( )
ulster	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 70 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Bellflower, California	( )	( )
Cleveland, Ohio	( )	( )
East St. Louis, Illinois	( )	( )
Fort Pierce, Florida	( )	( )
Middletown, Connecticut	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 70 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Highland Park, Michigan	( )	( )
Mountain View, California	( )	( )
Schnectady, New York	( )	( )
Sharon, Pennsylvania	( )	( )
Tyler, Texas	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and quietly wait for further instructions.

TEAM No. 70 Problem "C"

(Name) (Your Identification Code No.)

The third set of United States cities is alphabetically listed below. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Boulder, Colorado	( )	( )
Charlottesville, Virginia	( )	( )
El Dorado, Arkansas	( )	( )
McAllen, Texas	( )	( )
McKeesport, Pennsylvania	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 70 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used by entering number 2 similarly; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
earthquake	( )	( )
keelson	( )	( )
kick	( )	( )
sandal	( )	( )
yard	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

widely	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

wake	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 70 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
graceful	( )	( )
mixture	( )	( )
oddly	( )	( )
quit	( )	( )
widely	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 70 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
jag	( )	( )
jester	( )	( )
landmark	( )	( )
unfortunate	( )	( )
wake	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 80 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Burlington, North Carolina	( )	( )
Haverhill, Massachusetts	( )	( )
La Habra, California	( )	( )
Schnectady, New York	( )	( )
Washington, D.C.	( )	( )

When you have finished the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

Sharon, Pennsylvania	( )	( )
Vineland, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 80 Problem "B"

(Name) (Your Identification Code No.)

Below is the second alphabetical list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5) as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Beverly Hills, California	( )	( )
Fort Pierce, Florida	( )	( )
Lima, Ohio	( )	( )
Muskogee, Michigan	( )	( )
Pawtuckett, Rhode Island	( )	( )

TEAM No. 80 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Fond du Lac, Wisconsin	( )	( )
Kirkwood, Missouri	( )	( )
Plainsfield, New Jersey	( )	( )
Sharon, Pennsylvania	( )	( )
Vineland, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 80 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used by entering number 2 similarly; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
accelerator	( )	( )
vat	( )	( )
wait	( )	( )
ward	( )	( )
wherefore	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

widely	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

paragraph	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

TEAM No. 80 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
caterpillar	( )	( )
election	( )	( )
flannel	( )	( )
interrupt	( )	( )
widely	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 80 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
failing	( )	( )
gem	( )	( )
keelson	( )	( )
mammal	( )	( )
paragraph	( )	( )

As before, when you have completed the ranking, turn this sheet over and quietly wait for further instructions.

TEAM No. 90 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Idaho Falls, Idaho	( )	( )
Irving, Texas	( )	( )
Minnetonka, Minnesota	( )	( )
Pawtucket, Rhode Island	( )	( )
St. Louis, Missouri	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

Rock Hill, South Carolina	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 90 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Eugene, Oregon	( )	( )
Garden City, Michigan	( )	( )
La Habra, California	( )	( )
Royal Oak, Michigan	( )	( )
Valdosta, Georgia	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 90 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
El Cajon, California	( )	( )
Fort Pierce, Florida	( )	( )
Oshkosh, Wisconsin	( )	( )
Park Ridge, Illinois	( )	( )
Rock Hill, South Carolina	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 90 Problem D

(Name) (Identification Code No.)

Five words are listed alphabetically below. You are to judge their order of frequency of occurrence or usage in familiar types of literature and publications. Assign rank positions from the most used to the least used. Indicate which word you think occurs most frequently by entering the number 1 in the space beside the word; indicate the next most frequently used word by similarly entering number 2; continue until all words are assigned a rank from one to five, most to least used.

WORD	Initial Rank Here!	Final Rank Here!
facile	( )	( )
ferment	( )	( )
hasten	( )	( )
jay	( )	( )
keep	( )	( )

As before, when you have finished, turn this sheet over and wait quietly for further instructions.

upstairs \ / \ /

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

naptha ( ) ( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 90 Problem E

(Name) (Identification Code No.)

The second set of words to be ranked for frequency of usage is shown below. As before, assign rank positions from the most used to the least used. Indicate which word you think occurs mot frequently by entering the number 1 in the space provided beside the word; indicate the next most frequently occurring word, in your opinion, by similarly entering the number 2 beside it; continue until all words are assigned a rank position from one to five, from most to least used.

WORD	Initial Rank Here!	Final Rank Here!
administration	( )	( )
frankly	( )	( )
physical	( )	( )
repose	( )	( )
upstairs	( )	( )

As before, when you have finished, turn this sheet over and quietly wait for further instructions.

TEAM No. 90 Problem F

(Name) (Identification Code No.)

The third set of words to be ranked for frequency of usage is shown below. As before, assign rank positions, from the most used (number 1) to the least used (number 5). Indicate which word you think occurs most frequently by entering number 1 in the space beside the word, and so on until all words are assigned a rank position, from most (1) to least (5), as indicated by the number beside them.

WORD	Initial Rank Here!	Final Rank Here!
canopy	( )	( )
gem	( )	( )
halloo	( )	( )
jewelry	( )	( )
naptha	( )	( )

As before, when you have completed the ranking turn this sheet over and quietly wait for further instructions.

TEAM No. 100 Problem "A"

(Name) (Your Identification Code No.)

Five United States cities are listed alphabetically below. You are to judge them according to their size, indicating the largest by entering the number 1 in the space provided; similarly enter the number 2 for the city you judge to be the next largest -- and so on until you have indicated a rank order position for all five cities. Use only one column.

CITY	Write initial rank HERE!	Write final rank HERE!
Bessemer, Alabama	( )	( )
Fort Collins, Colorado	( )	( )
Milwaukee, Wisconsin	( )	( )
Redwood City, California	( )	( )
Royal Oak, Michigan	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

When you have finished the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 100 Problem "B"

(Name) (Your Identification Code No.)

Below is the second list of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Jackson, Michigan	( )	( )
Mason City, Iowa	( )	( )
Minnetonka, Minnesota	( )	( )
Odessa, Texas	( )	( )
Perth Amboy, New Jersey	( )	( )

When you have completed the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

When you have finished the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No. 100 Problem "C"

(Name) (Your Identification Code No.)

Below is listed the third set of five United States cities. Assign a rank order position to each, according to size from the largest (1) to the smallest (5), as you did in Problem "A".

CITY	Write initial rank HERE!	Write final rank HERE!
Hutchinson, Kansas	( )	( )
La Habra, California	( )	( )
Parkersburg, West Virginia	( )	( )
Southgate, Michigan	( )	( )
Steubenville, Ohio	( )	( )

When you have finished the rankings as directed, turn this sheet face down on the desk and wait quietly for further instructions.

TEAM No._____ Problem G _____
(Name) (Identification Code No.)

A situation is described below which you might encounter in your duties as a company commander. Read the statement of the situation carefully, and evaluate it as you ordinarily would in the actual circumstances. Following the statement there are listed five possible actions to take to handle the problem. Look them over and judge them according to preference of action to take. Then, as in the other problems, assign to each a rank order position, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) preferred by entering the number in the space provided.

You are a company commander. A recruit in your company has maintained an appearance, general cleanliness, military bearing and motivation best described as adequate but unremarkable up to this time. He has confidence in you and has asked to discuss his situation with you.

After barely passing Test I & II, and Test III, in the sixth week of training he fails Test IV. He and the EPO don't hit it off too well, but have no obvious hostility for each other. There is good reason to believe the recruit will continue to have this degree of difficulty in passing written tests.

As a company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Talk it over at length with the recruit -- make sure he sees all the angles of the situation.	( )	( )
(b) Do nothing except make it clear he either "makes it" or he doesn't, according to his ability, and whatever happens is for the best.	( )	( )
(c) Coach him yourself on expected subject matter in tests and help him to get "test-wise."	( )	( )
(d) Assign the Educational Petty Officer or some other recruit to help this man.	( )	( )
(e) Begin plans to refer him to the Brigade Aptitude Board or otherwise effect a set-back in training. He needs more time and repetition to help catch on.	( )	( )

When you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No._____ Problem III

(Name) (Identification Code No.)

Below is given a second statement of a situation which you might encounter as a company commander. Read the statement carefully, and evaluate the situation as you ordinarily would in the actual circumstances described. Again, five possible actions are listed which one might take to handle the problem. Look them over and judge them according to preference of action to take. Then, as in the other problems, assign a rank order position to each, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) preferred by entering the number in the space provided.

You are a company commander. A recruit set back from a company one week ahead of yours on the training schedule is assigned to you. He is fairly clean and makes a generally satisfactory appearance. He is not remarkably belligerent(aggressive toward others and/or resistice to discipline). His hard card indicates chronic but minor mistakes which seem attributable to nothing more than carelessness. On reporting to your company he is noticeabl demotivated and somewhat disgusted with himself.

It is obvious and inevitable that he will pull down your STAR grade substantially, and with their present standing in competition (either very good or very poor) the company call ill afford to lose any points.

As a company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Do nothing except assign him a buddy to show him around the new company. He "makes it" or he doesn't in this ~~this~~ or any other company, just as he will have to do after boot camp.	( )	( )
(b) Work with him yourself so he doesn't hurt the company's efforts and standing.	( )	( )
(c) Wait until he slips more, as he probably will, and then attempt to justify another set-back/ASMO.	( )	( )
(d) Have the company petty officers square him away. Have them inform him what is expected of recruits in this company and then press hard in their demands on him.	( )	( )
(e) Talk to him plainly. Let him know this set back is another chance for him, but without a radical change on his part, very likely his last one.	( )	( )

When you have completed the ranking, thurn this sheet over and wait quietly for

TEAM No. _____ Problem I

(Name) (Identification Code No.)

Below is given a third statement of a situation which you might encounter as a company commander. Read the statement carefully, and evaluate the situation as you ordinarily would in the actual circumstances described. Again, five possible actions are listed which one might take to handle the problem. Look them over and judge them according to the preference of action to take. Then, as in the other problems, assign a rank order position to each, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) preferred by entering the number in the space provided.

You are a company commander. A recruit in his second week of training has been belligerent (aggressive toward others and resistive to discipline and the military system), and he tends to be disrespectful. He causes trouble in minor but very annoying ways in the company. This is the first time the matter is brought to your attention by others, although you have suspected this of him and are told there have been many instances of this type of behavior. However, the recruit seems to be keeping up with the other recruits of this company under training.

As his company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Instruct the petty officers, who have shown considerable responsibility and effectiveness for this stage of training, to handle this problem.	( )	( )
(b) Have a brief talk with him yourself -- tell him to get squared away and get along better.	( )	( )
(c) Send him to battalion headquarters. This is an opportunity for an object lesson for all, and will let him know that disciplined behavior is important.	( )	( )
(d) Do nothing this early in training. His company peers have shown they probably know how to handle this kind of "wise guy" nonconformity in terms of the nuisance it is to others.	( )	( )
(e) Figure out some "hard card hits", and let him know in this way what is expected of recruits in your companies and in recruit training, and also what it means to get along with your shipmates.	( )	( )

When you have finished the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. _____ Problem J

(Name) (Identification Code No.)

A situation is described below whichyou might encounter in your duties as a company commander. Read the statement of your situation carefully, and evaluate it as you ordinarily would in the actual circumstances. Following the statement there are listed five possible actions to take to handle the problem. Look them over and judge them according to preference of action to take. Then, as in the other problems, assign to each a rank order position, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) by entering the number in the space provided.

You are a company commander. A recruit in your company has maintained an appearance, military bearing, general cleanliness and motivation best described as adequate but unremarkable up to this time. He has confidence in you and has come to discuss his situation. He is now in the sixth week of training and has had continued great difficulty in learning to swim, i.e. -- to pass the test. Except initially, there has been little progress in his response to the non-qualified swimmers classes. He does not appear to be afraid of the water.

As his company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Nothing -- this is a matter for the swimming instructors to handle. Tell him so.	( )	( )
(b) Teach him yourself -- the combination of his confidence in you and your above average swimming ability should solve the problem.	( )	( )
(c) Talk it over at length with the recruit -- helping him to see all angles of the situation.	( )	( )
(d) Talk to the swimming instructor about arranging added instruction which is probably all he needs.	( )	( )
(e) Somehow plan on arranging an early ASMO/set back from your company for him. Until this swimming problem is settled he can contribute only little and probably benefits less from training.	( )	( )

When you have finished the ranking, turn this sheet over and wait quietly for further instructions.

Team No. _____ Problem K

(Name) (Identification Code No.)

Below is given a second statement of a situation which you might encounter as a company commander. Read the statement carefully, and evaluate the situation as you ordinarily would inthe actual circumstances described. Again, five possible actions are listed which one might take to handle the problem. Look them over and judge them according to preference of action to take. Then, as in the other problems, assign a rank order position to each, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) preferred by entering the number in the space provided.

You are a company commander. A recruit is set back to your company from Military Indoctrination Company. Now he is fairly clean and makes a satisfactory to good appearance. He is not remarkably belligerent (aggressive toward others and/or resistive to discipline). His records show evidence of a few minor mistakes apparently due to carelessness, but M.I.C. experience apparently improved on that tendency. However, he simply cannot drill acceptably. He is awkward and ungainly, and he is quite self conscious about this. He is noticeably demotivated and somewhat disgusted with himself. It is obvious and inevitable that he will pull down your drill score substantially, and with their present standing in competition (very good or very poor) the company can ill afford loss of any points.

As his company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Do nothing except assign him a "buddy" to show him around the new company. He "makes it" or he doesn't in this or any company, just as he will have to do after boot camp.	( )	( )
(b) Work with him yourself so he doesn't hurt the company's efforts and standing.	( )	( )
(c) Wait until he shows ineptness in drill, as he probably will, and then attempt to justify a set back/ASMO quickly.	( )	( )
(d) Have the petty officers square him away. Have them let him know what is expected of recruits in this company and press hard in their demands on him.	( )	( )
(e) Talk to him yourself. Let him know that this set back is another chance for him, but without a radical change on his part, likely his last one.	( )	( )

When you have completed the ranking, turn this sheet over and wait quietly for further instructions.

TEAM No. _____ Problem L

_____
(Name) (Identification Code No.)

Below is given a third statement of a situation which you might encounter as a company commander. Read the statement carefully, and evaluate the situation as you ordinarily would in the actual circumstances described. Again, five possible actions are listed which one might take to handle the problem. Look them over and judge them according to the preference of action to take. Then, as in the other problems, assign a rank order position to each, from most preferred or appropriate to the least preferred or appropriate action to handle the problem described. Rank the proposed actions from 1 to 5 in the order of preference of manner of handling the problem. Indicate the rank order position from most (1) to least (5) preferred by entering the number in the space provided.

You are a company commander. After sending a recruit from your company to the Battalion office, and then to Regimental Headquarters for being intolerably belligerent (aggressive toward others and/or resistive to military discipline) it is decided to assign him to Military Indoctrination Company, Bravo Unit, and you are so informed. He returns to the company compartment in the barracks where you are present and in his unhappiness and self-disgust he "blows up" and "lips off". This behavior seems caused as much by his disturbed feelings at the moment as by his habitual attitude that got him into trouble initially. It is not really clear if his remarks are addressed to you personally, to just anyone within earshot, or to no one at all and he is just letting off steam.

As his company commander, what would you do?

ACTION	Initial Rank Here	Final Rank Here
(a) Place him on report for a serious RTC disciplinary offense.	( )	( )
(b) Make a clear and detailed hard card entry about this incident so that it will follow him to MIC for corrective attention.	( )	( )
(c) Send him back to the Battalion office. His behavior, suggesting incorrigibility, is intolerable.	( )	( )
(d) Call him to attention. Dress him down properly regarding specifically his gross personal faults and shortcomings concerning minimum conformity to military life. Explain that this set back is his last chance to square away.	( )	( )
(e) Do nothing in spite of his dramatic display of poor military behavior. He is best regarded as a lesser nuisance at this point.	( )	( )

When you have finished the ranking, turn this sheet over and wait quietly for further instructions.

Work Sheet - Leaders' Relative Influence (λ)

TEAM #_____ PROBL_____

n = ____ $(n-1)t^2$ = ____

INITIAL RANKING

TEAM MEMBERS

ITEM								S_1

FINAL RANKING

TEAM MEMBERS

								S_2

Computation of Lambda: from (sum of products of members 1st rank x S_2 for each item) subtract (sum of products of members final rank x S_2) and divide by $(n-1)t^2$.

Team Member

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

____ lambda = _____ = _____ = ( )

Computed by_____

Checked by _____

APPENDIX III

TEAM MEMBERSHIPS SHOWING INDIVIDUAL OEI RANKS AND MEAN RANKS FOR TEAMS

Team 10		Team 20		Team 30		Team 40		Team 50	
Code	OEI Rank	Code	OEI Rank	Code	OEI Rank	Code	OEI Rank	Code	OEI Rank
111	1	60	11.5	58	6.5	30	1	112	14
104	10	63	21	83	11.5	109	13	7	24
2	20	87	33	14	22.3	32	30	88	31
25	37	108	28	55	29	134	39.5	131	41
56	47	93	38	33	56.5	53	49	11	49
51	55	135	56.5	21	68	97	58.5	136	49
76	66							42	58.5
M_{OEI}	33.7	M_{OEI}	39.6	M_{OEI}	32.2	M_{OEI}	32.3	M_{OEI}	38

Team 60		Team 70		Team 80		Team 90		Team 100	
Code	OEI Rank	Code	OEI Rank	Code	OEI Rank	Code	OEI Rank	Code	OEI Rank
129	5	5	6.5	58	6	80	3	82	2
113	15	3	16.5	72	16.5	73	8	40	9
75	32.5	24	25	20	26	36	18	119	19
117	42	47	32.5	91	34	48	35	95	27
37	50	50	43	10	44.5	27	44.5	118	36
155	61	12	62	44	52	124	53	70	46
		35	51	18	63	116	64	69	7
				17	67			105	68
M_{OEI}	34.0	M_{OEI}	35.0	M_{OEI}	38.5	M_{OEI}	32.2	M_{OEI}	32.2

APPENDIX IV

SIXTEEN PERSONALITY FACTOR TEST BOOKLET

AND ANSWER SHEET

IPAT 16 P. F.

FORM C

WHAT TO DO: The questions inside this booklet are to give you a chance to say what sort of a person you are and to state your interests and attitudes. Since each person is different, there are generally no "right" or "wrong" answers, but only what is true **for you.**

If a separate "Answer Sheet" has **not** been given to you, turn this booklet over and tear off the Answer Sheet on the back page.

Write your name and other particulars at the top of the Answer Sheet.

We first give you two examples so that you will know exactly what to do. To the right of each sentence there are three answers indicated. Look at the top left hand side of your Answer Sheet where it says "Examples." Although you are to read the questions in **this** booklet, **you must put your answers on the Answer Sheet,** alongside the same number as in the booklet.

Read the following examples and mark an x for your answers on the Answer Sheet:

EXAMPLES:

1. I find it hard to wake up quickly in the morning..... Yes (True) In Between (or Not Sure) No (False)

2. I would rather spend an evening:
   a. listening to good music;
   b. reading an exciting story..... a Uncertain (of either) b

Inside you will find more questions like these. When you are told to turn the page, begin with number 1 and go on at your own rate. In answering these questions we would like you to keep these four points in mind:

1. Answer the questions as frankly and truthfully as possible since there is no advantage in giving the wrong impression. Never give an untrue answer about yourself because you think it is the "right thing to say." There are ways of detecting such unfair answers.

2. Although this is an untimed test, we would still like you to answer the questions as quickly as you can. Do not spend time puzzling over the questions. Give the first, natural answer as it comes to you. Some questions are a bit similar to others but no two are exactly alike and your answers will often differ in these cases.

3. Use the middle answer **only** when it is **absolutely impossible** to lean toward one or the other of the answer choices. In other words, the "Yes" (or "a") or the "No" (or "b") answer should be used for **most** cases.

4. Do not skip any questions. Occasionally a statement may not seem to apply to you or your interests, but answer **every one,** somehow. Your answers will be kept confidential.

DO NOT TURN PAGE UNTIL TOLD TO DO SO

1. I think my memory is better than it ever was.	Yes, True	In Between, Not sure	No, False
2. I could happily live alone, far from anyone, like a hermit.	Yes	Occasionally	No
3. If I say the sky is "down" and winter is "hot", I would call a criminal: (a) a gangster, (b) a saint, (c) a cloud.	a	b	c
4. When I see "sloppy", untidy people I: (a) just accept it, (b) get disgusted and annoyed.	a	In Between	b
5. It annoys me to hear people say they can do something better than others.	Yes	Occasionally	No
6. At a party I let others keep the jokes and stories going.	Yes	Sometimes	No
7. If my income were more than enough for ordinary daily needs, I would feel I should give the rest to a church or other worthwhile cause.	Yes	In Between	No
8. Most people I see at a party are undoubtedly glad to meet me.	Yes	Sometimes	No
9. I would rather exercise by: (a) fencing and dancing, (b) wrestling and baseball.	a	In Between	b
10. I smile to myself at the big difference between what people do and what they say they do.	Yes	Occasionally	No
11. As a child I felt sad to leave home to go to school each day.	Yes	Occasionally	No
12. If a good remark of mine is passed by, I: (a) let it go, (b) give people a chance to hear it again.	a	In Between	b
13. When someone has bad manners I feel: (a) it is not my business, (b) I should show the person that people disapprove.	a	In Between	b
14. When I meet a new person I would rather: (a) discuss his politics and social views, (b) have him tell me some good, new jokes.	a	In Between	b
15. When I plan something, I like to do so quite alone, without **any** outside help.	Yes	Occasionally	No
16. I avoid spending time dreaming about "what might have been."	Yes	Sometimes	No
17. When I am going to catch a train, I get a little hurried, tense, or anxious, though I know I have time.	Yes	Sometimes	No
(End, Column 1 on Answer Sheet.)			
18. I have sometimes, even if briefly, had hateful feelings towards my parents.	Yes	In Between	No
19. I could be happy in a job that required me to listen to unpleasant complaints all day from employees and customers.	Yes	In Between	No
20. I think the opposite of the opposite of "inexact" is: (a) casual, (b) accurate, (c) rough.	a	b	c
21. I always have lots of energy at times when I need it.	Yes	In Between	No
22. I'd be extremely embarrassed to tell people I'd spent my vacation at a nudist camp.	Yes	In Between	No
23. I greatly enjoy all large gatherings, like parties or dances.	Yes	Sometimes	No

24. I feel that
(a) some jobs just do not need doing so carefully as others,
(b) **any** job should be done thoroughly if you do it at all..... a In Between b

25. In streets or stores I dislike the way some people stare at one..... Yes In Between No

26. I would rather be:
(a) a bishop, (b) a colonel..... a In Between b

27. If a neighbor cheats me over small things, I would rather humor him than show him up..... Yes Occasionally No

28. I would rather see:
(a) a good movie of hardy, pioneering days,
(b) a clever movie farce or skit on the society of tomorrow..... a In Between b

29. When I have been put in charge of a thing I insist that my instructions are followed or else I resign..... Yes Sometimes No

30. I find it wise to avoid excessive excitement because it tends to wear me out..... Yes Occasionally No

31. If I were good at both I would rather play at:
(a) chess, (b) bowling..... a In Between b

32. I feel it is cruel to vaccinate very small children, even against contagious diseases, and parents have a right to stop it..... Yes In Between No

33. I put my faith more in:
(a) insurance, (b) good fortune..... a In Between b

34. I can forget my worries and responsibilities whenever I need to..... Yes Sometimes No

(End, Column 2 on Answer Sheet.)

35. I find it hard to admit when I am wrong..... Yes Sometimes No

36. In a factory I would rather be in charge of:
(a) machinery or keeping records,
(b) talking to and hiring new people..... a In Between b

37. Which word does not belong with the other two:
(a) cat? (b) near? (c) sun?..... a b c

38. My health is affected by sudden changes, causing me to alter my plans for that reason..... Yes Occasionally No

39. I am quite happy to be waited on, at appropriate times, by personal servants..... Yes, Often Sometimes No, Never

40. I feel a bit awkward in company and do not show up quite so well as I should..... Yes Occasionally No

41. I think people should observe moral laws more strictly than they do... Yes Sometimes No

42. Some things make me so angry that I find it best not to speak..... Yes In Between No

43. I can do hard physical work without feeling worn out as soon as most people..... Yes Sometimes No

44. I think most witnesses tell the truth even if it becomes embarrassing..... Yes In Between No

45. I find it helpful to pace up and down when I am thinking..... Yes Sometimes No

46. I think this country would do better to spend more on:
(a) armaments,
(b) education..... a In Between b

GO RIGHT ON TO THE NEXT PAGE

47. I would rather spend an evening:
(a) in a hard game of cards,
(b) looking at photos of past vacations..... a In Between b

48. I would rather read:
(a) a good historical novel,
(b) an essay by a scientist on harnessing world resources..... a In Between b

49. There are really more nice people than objectionable people in the world. Yes In Between No

50. I honestly think I am more planful, energetic, and ambitious than many perhaps equally successful people..... Yes Occasionally No

51. There are times when I do not feel in the right mood to see anyone:
(a) very rarely, (b) quite often..... a In Between b

(End, Column 3 on Answer Sheet.)

52. When I know I'm doing the right thing I find my task easy..... Yes, Always Sometimes No, Seldom

53. I would rather be:
(a) in a business office, organizing and seeing people,
(b) an architect, drawing plans in the back room..... a In Between b

54. Black is to gray as pain is to:
(a) wound? (b) illness? (c) discomfort?..... a b c

55. I am always a sound sleeper, never walking or talking in my sleep..... Yes In Between No

56. I can look anyone in the eye and tell a lie with a straight face (if for a right end)..... Yes Occasionally No

57. I have been active in organizing a club, team, or social group..... Yes Occasionally No

58. I admire more:
(a) a clever but undependable man,
(b) an average man but strong to resist temptations..... a In Between b

59. When I make a just complaint I always get matters adjusted to my satisfaction..... Yes Sometimes No

60. Discouraging circumstances can bring me near to tears..... Yes Occasionally No

61. I think many foreign countries are actually more friendly than we suppose..... Yes Sometimes No

62. There are times, every day, when I want to enjoy my own thoughts, uninterrupted by other people..... Yes In Between No

63. I get annoyed at being held up by small rules and regulations which, I admit, are really necessary..... Yes In Between No

64. I think much so-called modern "progressive" education is less wise than the old rule "spare the rod and spoil the child."..... Yes, True Sometimes No, False

65. I learned more in school days by:
(a) going to class, (b) reading a book..... a In Between b

66. I avoid getting involved in social responsibilities and organizations..... Yes, True Sometimes No, False

67. When a problem gets hard and there is a lot to do, I try:
(a) a different problem,
(b) a different attack on the same problem..... a In Between b

68. I get strong emotional moods—anxiety, anger, laughter, etc.—that seem to arise without much actual cause..... Yes Occasionally No

(End, Column 4 on Answer Sheet.)

69. My mind does not work as clearly at some times as at others..... Yes, True | In Between | No, False

70. I am happy to oblige people by making appointments at times they like, even if a bit inconvenient to me..... Yes | Sometimes | No

71. I think the proper number to continue the series 1, 2, 3, 6, 5, is:
(a) 10, (b) 5, (c) 7..... a | b | c

72. I tend to be critical of other people's work..... Yes | Occasionally | No

73. I would rather do without something than put a waiter or waitress to a lot of extra trouble..... Yes | Occasionally | No

74. I love to travel—anytime..... Yes | Occasionally | No

75. I have sometimes come near to fainting, at a violent pain or the sight of blood..... Yes | In Between | No

76. I greatly enjoy talking to people about local problems..... Yes | Sometimes | No

77. I would rather be:
(a) a construction engineer,
(b) a teacher of social ideas and manners..... a | In Between | b

78. I have to stop myself from getting too involved in trying to straighten out other people's problems..... Yes | Sometimes | No

79. I find the conversation of my neighbors dull and boring:
(a) in most cases,
(b) only in a very few..... a | In Between | b

80. I generally fail to notice hidden propaganda in what I read, unless someone points to it..... Yes, True | Occasionally | No, False

81. I think every story and movie should remind us of a moral..... Yes | Sometimes | No

82. More trouble arises from people:
(a) changing and meddling with ways that are already O. K.,
(b) turning down new, promising methods..... a | In Between | b

83. I sometimes hesitate to use my own ideas, for fear they might be impractical..... Yes | In Between | No

84. Prim, strict people do not seem to get on well with me..... Yes, True | Sometimes | No, False

85. My memory does not change much from day to day..... Yes, True | Sometimes | No, False

(End, Column 5 on Answer Sheet.)

86. I may be less considerate of other people than they are of me..... Yes, True | Occasionally | No, False

87. I am more restrained than most people in saying what my feelings are. Yes | Sometimes | No

88. If the two hands on a watch come together exactly every 65 minutes (according to an accurate watch), the watch is running:
(a) slow, (b) on time, (c) fast..... a | b | c

89. I get impatient, and begin to fume and fret, when people delay me unnecessarily..... Yes | Occasionally | No

90. People say that I like to have things done my own way..... Yes, True | Occasionally | No, False

91. I usually would say nothing if the tools given me to do a job are not quite what they should be..... Yes, True | Sometimes | No, False

GO RIGHT ON TO THE NEXT PAGE

92. At home, with a bit of spare time, I:
(a) use it in chatting and relaxing,
(b) plan to fill it with special jobs..... a In Between b

93. I am shy, and careful, about making friendships with new people..... Yes Occasionally No

94. I think that what people say in poetry could be put just as exactly in plain prose..... Yes Sometimes No

95. I suspect that people who act friendly to me can be disloyal behind my back:
(a) yes, generally, (b) occasionally, (c) no, rarely..... a b c

96. I think that even the most dramatic experiences during the year leave my personality much the same as it was..... Yes Sometimes No

97. I tend to speak rather slowly..... Yes Sometimes No

98. I get unreasonable fears or distastes for some things, for example, particular animals, places, and so on..... Yes Sometimes No

99. In a group task I would rather:
(a) try improvements in organization,
(b) keep the records and see that rules are kept..... a In Between b

100. To vote well on a social issue I would read:
(a) a widely recommended novel about it,
(b) a textbook listing statistical and other facts..... a In Between b

101. I get rather fantastic or ridiculous dreams (in sleep)..... Yes Occasionally No

102. If left in a lonely house I tend, after a time, to feel a bit anxious or fearful. Yes Sometimes No

(End, Column 6 on Answer Sheet.)

103. I may deceive people by being friendly when I really dislike them..... Yes Sometimes No

104. Which word does not belong with the other two:
(a) run? (b) see? (c) touch?..... a b c

105. If Mary's mother is Fred's father's sister, what relation is Fred to Mary's father:
(a) cousin? (b) nephew? (c) uncle?..... a b c

ANSWER SHEET: THE 16 P. F. TEST, FORM C

FIRST MIDDLE INITIAL LAST DATE ADDRESS (OR OCCUPATION OR AS INSTRUCTED)

(WRITE M OR F) AGE (NEAREST YEAR)

les: 1 Y I N 2 a U b

★

Do not write

Factor SCORE Raw

MD (Experimental)

A B C E F G H I L M N O Q_1 Q_2 Q_3 Q_4

I N	18 Y I N	35 Y S N	52 Y S N	69 Y I N	86 Y O N	103 Y S N
O N	19 Y I N	36 a I b	53 a I b	70 Y S N	87 Y S N	104 a b c
b c	20 a b c	37 a b c	54 a b c	71 a b c	88 a b c	105 a b c
I b	21 Y I N	38 Y O N	55 Y I N	72 Y O N	89 Y O N	
O N	22 Y I N	39 Y S N	56 Y O N	73 Y O N	90 Y O N	
S N	23 Y S N	40 Y O N	57 Y O N	74 Y O N	91 Y S N	
I N	24 a I b	41 Y S N	58 a I b	75 Y I N	92 a I b	
S N	25 Y I N	42 Y I N	59 Y S N	76 Y S N	93 Y O N	
I b	26 a I b	43 Y S N	60 Y O N	77 a I b	94 Y S N	
O N	27 Y O N	44 Y I N	61 Y S N	78 Y S N	95 a b c	
O N	28 a I b	45 Y S N	62 Y I N	79 a I b	96 Y S N	
I b	29 Y S N	46 a I b	63 Y I N	80 Y O N	97 Y S N	
I b	30 Y O N	47 a I b	64 Y S N	81 Y S N	98 Y S N	
I b	31 a I b	48 a I b	65 a I b	82 a I b	99 a I b	
O N	32 Y I N	49 Y I N	66 Y S N	83 Y I N	100 a I b	
S N	33 a I b	50 Y O N	67 a I b	84 Y S N	101 Y O N	
S N	34 Y S N	51 a I b	68 Y O N	85 Y S N	102 Y S N	

ES:

People differ in ways they think about themselves and about those with whom they work. This may be important in working with others. Please give your immediate or first reaction to the items on the following pages.

On each sheet are pairs of words which are opposite in meaning, such as Talkative and Quiet. You are asked to describe yourself and two of the shipmates with whom you work or have worked at some time by placing a check in one of the six spaces on the line between the two words.

Each space represents how well the adjective fits the person you are describing, as if it were written with slightly different descriptions or shades of difference from one space to the next, as below.

Talkative						Quiet
very talkative	quite talkative	more talkative than quiet	more quiet than talkative	quite quiet	very quiet	

For Example: If you were to describe yourself, and you ordinarily think of yourself as being quite talkative, you would put a check in the second space from the work talkative, like this ---

Talkative		X				Quiet

If you ordinarily think of yourself as somewhat more quiet than talkative, you would put your check on the quiet side of the middle.

Talkative				X			Quiet

If you think of yourself as very quiet, you would use the space nearest the word quiet.

Talkative						X	Quiet

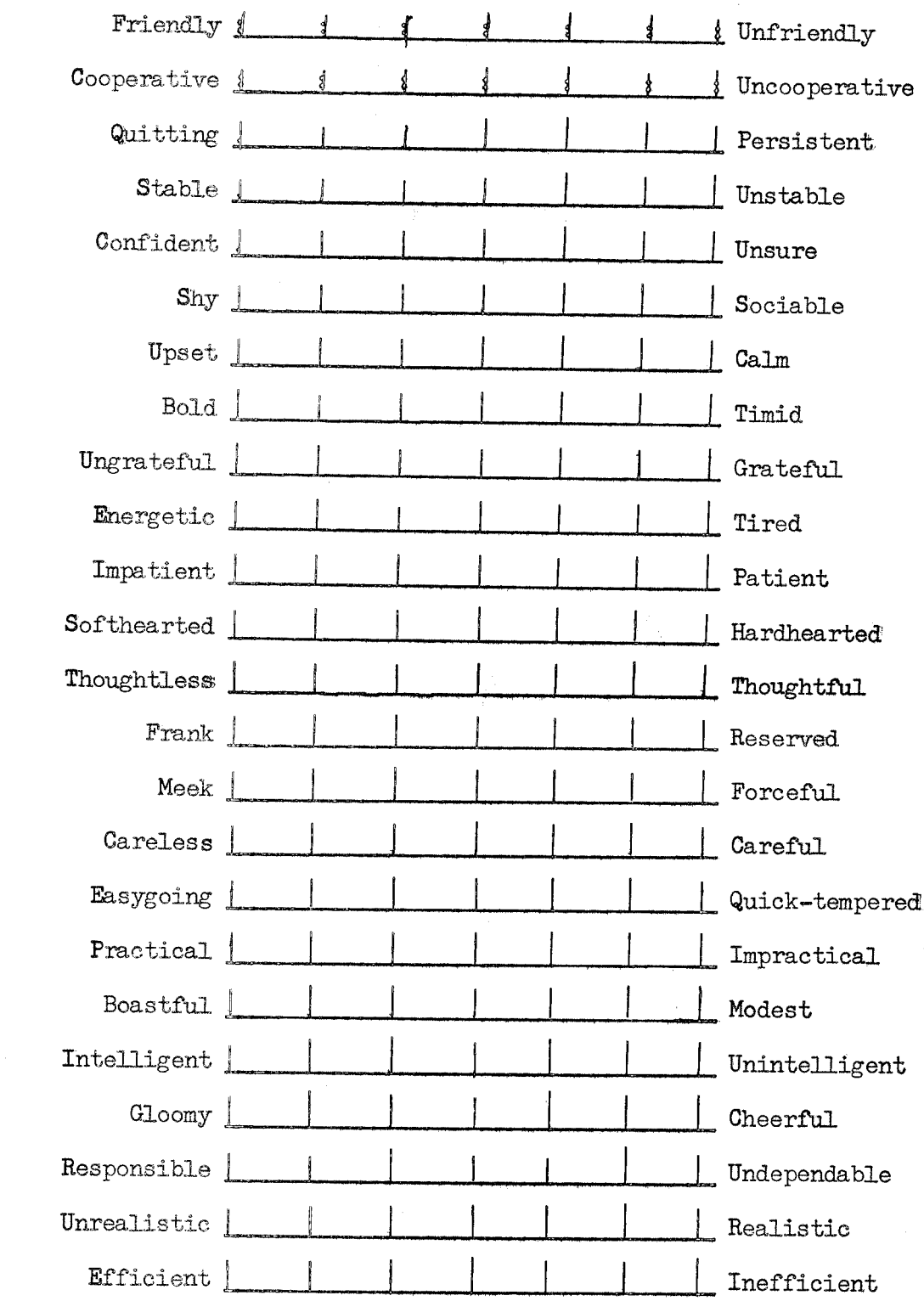
Look at the words at both ends of the line before you put your check mark in a space. Please remember that there are no right or wrong answers. Work rapidly -- your first answer is likely to be the best. Please do not omit any items and mark each item only once.

SCALE SHEET ONE

(Name)

Describe yourself as you would ordinarily think about yourself.

(Rate) (Present Billet)



SCALE SHEET TWO

(Name)

(Rate) (Present Billet)

Think of the person in the Navy with whom you can work best. He may be someone you work with now, or he may be someone you knew and worked with in the past.

He does not have to be the person you liked best, but should be the person with whom you could best get a job done. Describe this man as he appears to you by entering check marks in the appropriate spaces on the attached sheet.

SCALE SHEET 2 3
(Circle One)

(Name)

In the spaces below describe the person about whom you are thinking according to the directions given you.

(Rate) (Present Billet)

Friendly	| | | | | | |	Unfriendly
Cooperative	| | | | | | |	Uncooperative
Quitting	| | | | | | |	Persistent
Stable	| | | | | | |	Unstable
Confident	| | | | | | |	Unsure
Shy	| | | | | | |	Sociable
Upset	| | | | | | |	Calm
Bold	| | | | | | |	Timid
Ungrateful	| | | | | | |	Grateful
Energetic	| | | | | | |	Tired
Impatient	| | | | | | |	Patient
Softhearted	| | | | | | |	Hardhearted
Thoughtless	| | | | | | |	Thoughtful
Frank	| | | | | | |	Reserved
Meek	| | | | | | |	Forceful
Careless	| | | | | | |	Careful
Easygoing	| | | | | | |	Quick-tempered
Practical	| | | | | | |	Impractical
Boastful	| | | | | | |	Modest
Intelligent	| | | | | | |	Unintelligent
Gloomy	| | | | | | |	Cheerful
Responsible	| | | | | | |	Undependable
Unrealistic	| | | | | | |	Realistic
Efficient	| | | | | | |	Inefficient

SCALE SHEET THREE

_____
(Name)

_____
(Rate) (Present Billet)

There are wlways some people with whom we can work better than with others. Think of the person in the Navy with whom you can work least well. He may be someone you know now, or he may be someone you knew in the past.

He should be the person with whom you would have the most difficulty getting a job done. Describe this man as he appears to you by entering check marks in the appropriate spaces on the attached sheet.

APPENDIX VI

LEADER-TYPES TRAIT PROFILE FORMS

AND

DIRECTIONS TO JUDGES

On scales below circle a score or value for the traits as you think appropriate for the described leader-type.

Capsule Descriptions of the Various Personality Factors or Traits

Trait A

Aloof(Schizothymia).....versus.....Warm, outgoing.(Cyclothymia)

The person who scores low on trait A (score 1 or 2) tends to be stiff, cool, aloof. He likes things rather than people, working alone, and avoidance of clash of viewpoints. He is likely to be precise and "rigid" in his way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend, at times, to be critical, obstructive, hard.

The person who scores high on Trait A (9 or 10) tends to be good-natured, easy going, ready to cooperate, attentive to people, soft-hearted, kindly, trustful, adaptable. He likes occupations dealing with people and socially impressive situations. He readily forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people, but he is often less dependable in precision work and in obligations.

1 2 3 4 5 6 7 8 9 10
(Low) (Average) (High)

Trait B

Dull(Low general ability).....versus.....Bright(Intelligence)

The person scoring low on Trait B tends to be slow to learn and grasp, dull, sluggish. He tends to have little taste or capacity for the higher forms of knowledge, and to be somewhat boorish.

The person who scores high on Trait B tends to be quick to grasp ideas, a fast learner, intelligent. He is usually rather cultured.

1 2 3 4 5 6 7 8 9 10

Trait C

Emotional(General instability).....versus.....Mature(Ego strength)

The person who scores low on Trait C tends to be emotionally immature, lacking in frustration tolerance, changeable, evasive, neurotically(chronically) fatigued, worrying, easily annoyed, generally dissatisfied, having complaints of phobias, sleep disturbances, psychosmatic ailments.

The person who scores high on Trait C tends to be emotionally mature, stable, calm, phlegmatic, realistic about life, placid, possessing ego strength, having an integrated philosophy of life, better able to maintain high group morale.

1 2 3 4 5 6 7 8 9 10

Trait E

Submissive (submission).....versus.....Dominant(dominance)

The person who scores low on Trait E tends to be dependent, a follower, and to take action which goes along with the group. He tends to lean on others in making decisions, and is often soft-hearted, expressive, and easily upset.

The person who scores high on Trait E tends to be an ascendant, self-assured, assertive, independent-minded person. He is bold in his approach to situations. He may at times be hard, stern, hostile, solemn, tough-minded, authoritarian.

1 2 3 4 5 6 7 8 9 10

Trait F

Glum, silent(Desurgency).....versus.....Enthusiastic(surgency)

The person who scores low on Trait F tends to be taciturn, reticent, introspective. He is sometimes incommunicative, melancholic, anxious, depressed, smug, languid and slow.

The person who scores high on Trait F tends to be cheerful, talkative, frank, expressive, quick, alert, unperturbable. He is frequently chosen as an elected leader.

1 2 3 4 5 6 7 8 9 10

Trait G

Casual(Weakness of character).....versus.....Conscientious(Super-ego strength)

The person who scores low on Trait G tends to be fickle, undependable, irresolute, unsteady, quitting. He is sometimes demanding, impatient, indolent, obstructive, lacking in internal standards.

The person who scores high on Trait G tends to be strong in character, persevering, responsible, determined, consistent, planful, energetic, cautious, well-organized. He is usually conscientious, with high regard for moral standards, and prefers efficient people to other companions.

1 2 3 4 5 6 7 8 9 10

Trait H

Timid (Withdrawn schizothymia).....versus.....Adventurous(Adventurous Cyclothymia)

The person who scores low in this trait tends to be shy, withdrawing, cautious, retiring, cool, a "wallflower." He usually has inferiority feelings, and tends to be slow and impeded in speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not able to keep in contact with all that is going on around him.

The person scoring high on Trait H tends to be sociable, participating, ready to try new things, spontaneous, abundant in emotional response. He is able to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consume much time talking. He may be 'pushy' and active in interest in the opposite sex.

1 2 3 4 5 6 7 8 9 10

Trait I

Tough(toughenss).....versus.....Sensitive(sensitivity)

The person who scores low on Trait I tends to be practical, realistic, masculine, independent, responsible, but 'uncultured.' He is sometimes phlegmatic, hard, cynical smug. He tends to keep a group operating on a practical and realistic "no-nonsense" basis.

The person who scores high on Trait I tends to be tender-minded, imaginative, introspective, artistic, fastidious, excitable. He is sometimes demanding, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morale by negative remarks.

1 2 3 4 5 6 7 8 9 10

Trait L

Trustful(Lack of paranoid tendency)..versus.....Suspecting(Paranoid tendency)

The person who scores low on Trait L tends to be free of jealous tendencies, adaptable, cheerful, composed, concerned about other people, a good team worker.

The person who scores high on this trait tends to be mistrusting and doubtful. He is often involved in his own ego, is self-opinionated, and interested in internal, mental life. He is usually deliberate in his actions, unconcerned about other people, a poor team member.

1 2 3 4 5 6 7 8 9 10

Trait M

Conventional(Practical concernedness)....versus.....Eccentric(Bohemian Unconcern)

A low soring person on this trait tends to be anxious to do the right things, practical, and conformist. He is easily concerned but able to keep his head in emergencies. He is often rather narrowly correct and unimaginative.

The person who scores high on Trait M tends to be unconventional, unconcerned, egocentric, bohemian, sensitive, imaginative. He sometimes makes emotional scenes, is somewhat irresponsible, impractical, undependable. He is often rejected in group situations.

1 2 3 4 5 6 7 8 9 10

Trait N

Simple (Naive simplicity).....versus.....Sophisticated(Sophistication)

The person who scores low on Trait N tends to be unsophisticated, sentimental, and simple. He is easily pleased and sometimes crude and awkward.

The person who scores high on Trait N tends to be polished, experienced, worldly, shrewd. He tends to be hard-headed and analytical. He has an intellectual, unsentimental approach to situations.

1 2 3 4 5 6 7 8 9 10

Trait O

Confident(Freedom from anxiety).....versus.....Insecure(Anxious insecurity)

The person who scores low on Trait O tends to be placid, calm, with unshakable nerve. He has a mature, unanxious confidence in himself and his capacity to deal with things. He is resilient and secure.

The person who scores high on Trait O tends to be depressed, moody, a worrier, suspicious brooding, avoiding people. He has a childlike tendency to anxiety in difficulties. He does not feel accepted in groups or free to participate.

1 2 3 4 5 6 7 8 9 10

Trait Q_1

Conservative(Conservatism).....versus.....Experimenting(Radicalism)

The person who scores low on Trait Q_1 tends to be overly cautious and moderate. He is opposed to any change, inclined to go along with tradition, and tends not to be interested in analytical "intellectual" thought.

The person who scores high on Trait Q_1 tends to be interested in intellectual matters and fundamental issues. He frequently takes issue with ideas, either old or new. He tends to be more well informed, less inclined to moralize, and more inclined to experiment in life generally, more tolerant of inconvenience.

1 2 3 4 5 6 7 8 9 10

Trait Q_2

Dependent (Group dependence).....versus.....Self-sufficient(self-sufficiency)

The person who scores low on Trait Q_2 prefers to work and make decisions with other people, likes and depends on social approval and admiration. He tends to go along with the group and may be lacking in resolution.

The person who scores high on Trait Q_2 tends to be independent, resolute, accustomed to going his own way, making decisions and taking action on his own. He is not necessarily dominant, however, in his relations with others.

1 2 3 4 5 6 7 8 9 10

Trait Q_3

Uncontrolled(Poor self-sentiment).....versus....Self-controlled(High self-sentiment)

The person who scores low on Trait Q_3 tends to lack will control and character stability. He is not too considerate, careful, or conscientious.

The person who scores high on Trait Q_3 tends to have strong control of his emotions and general behavior, is inclined to be considerate, careful, and evidences what is commonly termed "self-respect." He sometimes tends, however, to be obstinate.

1 2 3 4 5 6 7 8 9 10

Trait Q_4

Stable($R_e$laxation).....versus.....Tense(Somatic anxiety)

The person who scores low on Trait Q_4 tends to be calm, relaxed, composed, and satisfied(not frustrated).

The person who scores high on Trait Q_4 tends to be tense, excitable, restless, fretful, impatient. He is often overfatgued, but unable to remain inactive. He takes a poor view of group unity, orderliness, leadership.

1 2 3 4 5 6 7 8 9 10

INSTRUCTIONS

Leader-type Trait Profiling

On the next page is an interpretation of an attitude scale which depicts a certain type of individual who can be considered to be very much like or very much unlike one stereotype of the military leader. He acts in the tradition of military authority. One of his most important working principles is that "familiarity breeds contempt;" or, as stated in a more current interpretation "familiarity toward subordinates makes it more difficult for the leader to be objective in evaluating their performance, in acting as arbiter of discipline, and giving orders."

The results of a certain standard personality questionnaire are purported to give a self-picture of the subject who takes the test. The picture or profile is represented by various amounts or degrees of personality traits present in him. The traits comprising this profile are described on a subsequent page, and scales of values are given beneath each trait description.

You are asked to describe the person depicted in the interpretation of the attitude measure in terms of the traits which constitute the test profile.

In other words, for each pair of traits listed and explained below, you are to assign a score which you think shows the amount or degree of the trait you would expect the described leader type to have.

Circle the value indicating the degree of the trait you would think appropriate to the person represented in the description on the next page.

Keep in mind that personality traits do not occur only in the extreme degrees, or all at one extreme. In any personality, real or hypothetical, traits will be distributed with some at each extreme, some at the average, and scattered between.

TYPE OF LEADER

RELATIVELY EFFECTIVE

He is emotionally or psychologically distant from others. He is relatively independent of them, and less concerned with others' feelings and willing to reject a person with whom he cannot work or who cannot accomplish tasks he gives them. He sees large differences between himself and his coworkers, and between his most and least preferred coworkers. He is analytical in his evaluations and critical in his judgements of others. His perceptions of his coworkers discriminate their strong and weak points. Any group in which he is a member and has influence is usually an effective one.

In short, he is businesslike, extrapunitive, and 'hard headed' in his approach to his associates.

TYPE OF LEADER

RELATIVELY INEFFECTIVE

He is a person who is concerned about his interpersonal relations, and he feels the need for the approval and support of his associates. He tends to be emotionally involved with others as individuals, and is guided in his actions toward them by his sensitivity to their feelings. His personal relations with others do not depend on their ability to work with him or to accomplish tasks he gives them. He is generally accepting of others. In the perception of his coworkers he usually does not discriminate their strong and weak points. Groups in which he is influential generally are not effective.

In short, he is friendly, tolerant and accepting of others, and 'soft hearted' in his approach to his associates.

APPROVAL SHEET

The dissertation submitted by Edward Maurice Flaherty has been read and approved by five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

June, 1963
Date

Signature of Adviser