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USING AN ASSESSMENT CENTER TO PREDICT FIELD LEADERSHIP PERFORMANCE OF ARMY OFFICERS AND NCOs

Frederick N. Dyer
and
Richard E. Hilligoss

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averaged .66 for the different assessee groups, indicating a substantial degree of reliability for the rating instrument. Field leadership performance at 6 months was predicted by items in an entry interview, a paper and pencil test, and a Person Description Blank. Taken together, however, the results indicate only marginal utility for the USAIS ACTR for prediction of the field leadership performance of junior officers and NCOs. Typically, the more assessor time required for an assessee measure, the less chance that the score would predict field leadership.

The report is written for behavioral psychologists.

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OF ARMY OFFICERS AND NCOs**

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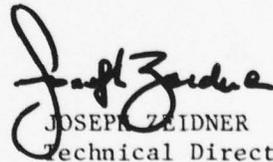
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FOREWORD

The research reported here was performed by the Fort Benning Field Unit of the Army Research Institute. As part of an ongoing program, the research is directed toward developing cost-effective methods for leadership assessment and training. This program includes research on multiple aspects of the design, development, evaluation, and integration of cost-effective leadership training systems for the U.S. Army.

This paper describes a validation study of the U.S. Army Infantry School (USAIS) Assessment Center (ACTR) which tested over 400 junior officers and NCOs during the period July 1973 to December 1974. The Army Research Institute correlated assessee data from the ACTR with field ratings of leadership obtained on the assessees 6 and 18 months following their assignment to new duty stations. This was done to identify ACTR exercises which accurately predict future leadership performance. Such exercises will be streamlined for future use in the selection and training of junior officers and NCOs.

This project was conducted during FY77 and FY78 as an in-house effort, part of Army RDTE Project 2Q262717A766, Manpower Systems Management. The research was directly responsive to the needs of USAIS and TRADOC.


JOSEPH ZEIDNER
Technical Director

USING AN ASSESSMENT CENTER TO PREDICT FIELD LEADERSHIP
PERFORMANCE OF ARMY OFFICERS AND NCOs

BRIEF

Requirement:

To determine how effectively an Assessment Center can predict field leadership.

Procedure:

During 1973 and 1974, the U.S. Army Infantry School (USAIS) Assessment Center (ACTR) at Fort Benning tested 408 officer and NCO students in USAIS leadership courses. Field leadership performance ratings were obtained from superiors, peers, and subordinates of the assessees at 6- and 18-month intervals following graduation of the assessee and assignment to a new unit.

Findings:

Field leadership ratings by superiors, peers, and subordinates were substantially the same at 6 and 18 months; that is, the ratings were reliable. The most assessor-intensive formal ACTR exercises actually did the poorest job of predicting field leadership. Self-description provided the most leadership predictors and required the least assessor and assessee time. Lieutenants who were rated high on leadership by their superiors, peers, and subordinates following the Infantry course, judged themselves to be competitive, sensitive, and organized. Captains who were about to enter the Advanced Course, and who later received high ratings on the field leadership criterion, were apt to be high on their need for order. The enlisted men about to enter Officer Candidate School, and who, following this training, were rated high on field leadership, were more apt than their low-rated peers to make a good overall impression. NCOs about to enter the Advanced NCO course, who later received high ratings on field leadership, were more apt than their low-rated peers to show enthusiasm, be athletic, and firm in their decisions.

Utilization of Findings:

Self-descriptions of leadership capacity did predict field leadership ratings. Such self-ratings could be used to aid leader selection in Basic Combat Training, Advanced Individual Training, and other situations where selection of leaders must occur swiftly and with little opportunity for observation of leader skills.

USING AN ASSESSMENT CENTER TO PREDICT FIELD LEADERSHIP PERFORMANCE
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USING AN ASSESSMENT CENTER TO PREDICT FIELD LEADERSHIP PERFORMANCE OF ARMY OFFICERS AND NCOs¹

INTRODUCTION

The assessment center concept involves the immersion of individuals in situations which simulate those he would face if he were selected for entry or promotion. It has been widely used in industry and business to select personnel for high level positions.² In 1973-1974 the U.S. Army Infantry School (USAIS) Assessment Center (ACTR) assessed students from the Infantry Officer Advanced Course (IOAC), the Infantry Officer Basic Course (IOBC) and the Advanced NCO Educational System (ANCOES) to determine the feasibility of the assessment center as techniques for leadership development and leadership prediction. It also assessed students from the Branch Immaterial Officer Candidate Course (BIOCC) to determine the feasibility of the assessment center concept as a selection device.³ The purpose of the present paper is to discuss the effectiveness of the ACTR for predicting field leadership performance.

METHOD

ASSESSMENT CENTER PERSONNEL

The assessors consisted of six Majors, seven Captains, two Lieutenants, three Master Sergeants, two Sergeants First Class, and one Staff Sergeant. The assessors were selected by DA using the following criteria: each man must be in one of the combat arms; each Captain and above must have had command experience; each Major, Captain, and Sergeant

1

A preliminary version of this Technical Paper was presented at the 19th Annual Conference of the Military Testing Association, San Antonio, Texas, 17-21 October 1977.

2

Earles, J. A. and Winn, W. R. Assessment Centers: An Annotated Bibliography. AFHRL -TR-77-15, May 1977.

3

U.S. Army Infantry School. Assessment Center After Action Report: Executive Summary (Book 1, Vol. 1), December 1974.

must have served in combat; and Officers must have an advanced degree in one of the behavioral sciences. The assessors received training for four months on principles and techniques in assessment, interviewing and counseling before beginning their duties. The training included repeated rehearsals of assessment exercises.

Table 1 presents a summary of assessee characteristics and group sizes. Assesseees reported to Fort Benning one week before their scheduled USAIS course to participate in the assessment center. They were randomly selected by DA from all students scheduled for USAIS leadership training.

ASSESSMENT CENTER EXERCISES

The ACTR staff, with assistance from Army Research Institute and HumRRO scientists, constructed exercises and questionnaires to measure ten dimensions of leader behavior. Leadership research indicated these dimensions to be appropriate for the assigned mission and it was believed these dimensions could be evaluated using the assessment center concept. These were adaptability, administrative skills, communication skills, decision making, forcefulness, mental ability, motivation, effectiveness in an organizational leadership role, social skills, and supervisory skills. In evaluating possible exercises and exercise concepts, a basic factor of consideration was that the exercises would place the assesseees in uniquely different situations while simultaneously providing multiple opportunities for the evaluation of each dimension. Exercises were developed which exhibited situational diversity, military relevance and apparent potential for eliciting behaviors related to the designated dimensions.⁴ The following exercises were developed:

Entry Interview: A background interview to elicit information related to motivation, experience and the assessee's self-knowledge of his strengths and weaknesses (Time: 65').

Appraisal Interview: An applied exercise in which each assessee interviewed two others to select one for a position within a battalion. This interview elicited behaviors related to communication skills, social interaction and organization of thought (105').

Leaderless Group Discussion: This exercise was a combined individual and group task in which 6 IOAC assesseees were assigned a mission to distribute year-end funds among the represented directorates while attempting to acquire a maximum amount for his own directorate. IOBC, BIOCC, and ANCOES assesseees were assigned a mission to get a soldier from their unit selected as the Brigade Soldier of the Month and providing a

4

Olmstead, J. A., Cleary, F. K., Lackey, L. L., and Salter, J. A. Development of Leadership Assessment Simulations. Human Resources Research Organization TR 73-21, September 1973.

Table 1

ASSEESSE GROUP CHARACTERISTICS AND SIZES

Descriptor	ASSESSMENT GROUP			
	IOBC	IOAC	BIOCC(OCS)	ANCOES
Number Assessed	90	88	143	87
Number with complete 6-month ratings	45	36	40	38
Pay Grade	O-1	O-3	E 3-6	E 6-7
Average Age	22.6	28.8	25.3	33.3
Average years of Active Duty	0.3	5.7	3.3	12.9

rank order of merit list of the available candidates. This exercise elicited behaviors associated with forcefulness, persuasiveness, organizational ability and group interaction (140').

In-Basket Exercise (Three versions: IOAC - assessee was placed in the role of a battalion commander; IOBC/BIOCC - assessee was placed in the role of a company commander; ANCOES - assessee was placed in the role of a 1st Sergeant). An in-basket containing many items typical of the appropriate position was presented to the assessee who had 3 hours to address each item in the in-basket. This exercise elicited behaviors relating to problem solving, decision making, work organization and leadership. It was followed by an interview to discuss reasons for action taken and the relationship perceived to exist among some of the actions (Exercise 180'; Interview 80').

War Game (IOAC assessee only): This was an assigned-role rotating leader exercise conducted in two 160 minute sessions. Teams of 6 players engaged in cost effectiveness analysis in a military force planning environment. Total costs, R&D, intelligence acquisition, balanced offensive/defensive forces were all considered under limited budget and time constraints. This exercise elicited organizational and leadership behavior (Exercise 320'; Orientation 90').

Radio Simulate (Three versions: IOAC assessee were placed in company commander role; IOBC/BIOCC assessee were placed in a platoon leader role during a civilian emergency situation to insure that lack of military experience did not preclude them from participation in the exercises; ANCOES assessee were placed in the role of acting platoon leaders). It was a 5-hour exercise using radios as the only means of communication. It elicited organizational and leadership behaviors (Exercise 300'; Orientation 90').

Assigned Leader Group Exercise (Field Exercise) (IOBC, BIOCC, ANCOES): This was a 5-hour rotating leader designated exercise involving a team of 6 assessee. There were 6 lanes with a different obstacle provided for each lane. It elicited emergent leadership, planning and organizational behaviors (300').

Management Exercise ("Conglomerate"): This was a two hour exercise divided into two planning and two trading periods. The 18-man assessment group was organized into three 6-man groups who competed against each other. This exercise elicited behaviors relating to emergent leadership, aggressiveness and social interaction (120').

Writing Exercise: This was an exercise designed to measure accuracy of information provided, grammar, spelling and completeness. The IOAC

assesseees responded to a Staff Action Paper and other assessment groups to a discharge action (60').

PSYCHOMETRIC TESTS AND SELF-DESCRIPTION INSTRUMENTS

A survey of tests in general was made revealing many possibilities for adoption into the assessment program. The primary criterion for selecting specific tests was relevance of the variables to be tested to the leadership dimensions of administrative skills, communication skills, supervisory skills, forcefulness, adaptability, decision making, and mental ability.

Additional criteria used in selecting tests were: non-offensive test items, suitability in content and format for use with mature adults, adequacy of normative data and theoretical discussions, recency of publication or revision and efficiency in test administration.

Both cognitive and non-cognitive tests were selected specifically to (1) allow for the comparison of an individual score with normative data and (2) verify the results of other assessment measurements. Group tests were selected in order to minimize the number of assessors and the amount of time required for each assessment. The psychometric tests and self-descriptive instruments selected are listed below. The Person Description Blank was developed for this project. All others are described in the Mental Measurement Yearbook.⁵

1. Leadership Opinion Questionnaire
2. Watson-Glaser Critical Thinking Appraisal
3. Nelson-Denny Reading Test
4. Henmon-Nelson Test of Mental Ability
5. Leadership Q-Sort Test
6. Social Insight Test (Chapin)
7. Work Environment Preference Schedule (Gordon)
8. Strong Vocational Interest Blank
9. Edwards Personal Preference Schedule
10. Person Description Blank

Questionnaires to obtain specific background information about the assessee, and to solicit the assessee's opinion of his assessment experience, were also developed. The purpose of these questionnaires was to assist in the overall research effort and to collect suggestions for improving Assessment Center techniques and administration.

5

Buros, O. K., The Seventh Mental Measurements Yearbook. Gryphon Press, Highland Park, N.J., 1972.

CONDUCT OF THE ASSESSMENT CENTER

Assessment activities occupied three-and-one-half days of the assessee's time. Days typically began at 0700 with activities continuing to 2100. This allowed collection of a great deal of information in the short time available, enhanced the "total immersion" experience, and reduced the effects of outside influences on ACTR performance. Paper and pencil tests, simulated leadership tasks and interviews were approximately equally distributed over the three-and-one-half-day period. Certain groups of assesseees returned for feedback counseling from one to three weeks following their assessment. During this three-hour period their leadership strengths and weaknesses as identified in the assessment center were communicated and activities were suggested which would lead to correction of deficiencies.

FIELD LEADERSHIP PERFORMANCE RATINGS

The leadership criterion used to validate the ACTR measures consisted of ratings of ten leadership dimensions by two superiors, two peers and two subordinates of the assessee. These were made six months following the completion of the assessee's USAIS course by personnel in his new unit. The same ratings were obtained again 18 months following completion of school although fewer questionnaires were returned at this later period. Where ratings were obtained at both periods, there was only a 10% overlap in raters from the first period to the second.

The ten leadership dimensions were decision making, administrative skills, interpersonal competence (social skills), communication skills, supervisory skills, organizational role skills, technical and tactical competence, leader motivation, leader adaptability, and leader forcefulness. For each dimension, five statements describing particular behaviors were rated making a total of 50 items on the Leadership Performance Rating Form (LPRF).⁶

Approximately one-half of the questionnaires were returned. Complete rating data was obtained on 159 of the original 408 assesseees at six months and complete data was obtained on 108 assesseees at six and 18 months.

⁶

Salter, J. R., and Olmstead, J. A. Research on Assessment Criteria and Counseling Methods. Human Resources Research Organization TRR 74-25, December 1974.

The average rating for all 50 items per questionnaire and all six questionnaires was calculated for six months and for 18 months. The correlations between these two averages ranged from .54 for the IOBC assessees, through .68 for IOAC assessees, to .75 for the ANCOES assessees. Only 15 BIOCC assessees had complete rating data for 6 and 18 months and the negative correlation between six and 18 month averages for this group (-.35) may have been spurious. The six-month/18-month correlation may be thought of as a test/retest reliability. These correlations are surprisingly high since on-the-job-training could change leadership over the 12-month period between ratings and because of the relatively short time for observation of leadership prior to the first ratings (six months). Correlations between rater types (superior, peer, subordinate) were also generally significant and positive for each rating period (for IOBC, IOAC, and ANCOES assessees).

Although these correlations indicate the overall average rating at a rating period was highly reliable, the questionnaire failed to discriminate among the ten dimensions that presumably were represented in the fifty items. A factor analysis indicated only one significant factor which accounted for 74% of this common variance. It is not clear whether the failure to discriminate among leadership dimensions reflected a "halo" effect or whether the different leadership dimensions are as interdependent as these high correlations indicate.

The average rating for all 300 questions (six raters x 50 questions) at the six-month rating period was used as the field leadership criterion to validate the ACTR measures. This choice was based on the high correlations (see above) between the six-month and 18-month ratings and the availability of greater data for the six-month period.

RESULTS

The scores obtained from the ACTR fall into the following six classes:

1. Assessor ratings of assessee performance during individual and group formal exercises such as the In-Basket,
2. Peer rankings of assessees in those formal exercises where a group of assessees participated together such as the Assigned Leader Group Exercise,
3. Self-rankings by the assessee of his performance relative to other group members in these group exercises,
4. Leadership dimension ratings made by an assessor during the Entry Interview with the assessee,

5. Assessee performance on paper and pencil performance tests, and
6. Assessee self-descriptions on questionnaires and other instruments such as the Edwards Personal Preference Schedule.

The results will be discussed for each of the above classes of score and, following this, the classes of ACTR scores themselves will be discussed and compared on their effectiveness for prediction of the field leadership ratings criterion. Proportions of successful predictors will be compared among classes as will the amount of time required by assessors and assessees to obtain each successful measure. The end result will be an ordering of the different classes of ACTR measure on their utility for predicting the criterion.

1. ASSESSOR RATINGS OF ASSESSEE PERFORMANCE DURING FORMAL EXERCISES

Leaderless Group Discussion (LGD)

Assessor ratings for this exercise provided good predictors of the field leadership criterion for the IOBC assessee group. In particular, a rating of "amount of negative social behavior shown" was correlated ($r = -.56$, $p < .01$) with the criterion indicating that those assessees who showed more negative social behavior were more likely to be rated high on field leadership. Similarly, "social concern" was related to the criterion with IOBC assessees who showed less social concern being more apt to be rated high on field leadership ($r = -.37$, $p < .01$). One other rated dimension that was significantly related to the criterion for this group was "speaking ability". IOBC assessees who were rated high on this dimension were more apt to be rated high on field leadership ($r = .28$, $p < .05$).

For BIOCC assessees, "social concern" was significantly related to the criterion ($r = .31$, $p < .05$) but, contrary to IOBC, high social concern was related to good ratings on the criterion.

For ANCOES assessees, the Leaderless Group Discussion produced a single significant relation with the criterion. The dimension "conveys information" was correlated negatively ($r = -.32$, $p < .05$), indicating that persons rated lower on this communication skill dimension were more apt to be rated high on the criterion. As will be shown throughout this section, poor performance for NCOs on the ACTR exercises was frequently related to higher ratings on the criterion.

Assessor ratings on the Leaderless Group Discussion failed to predict the criterion for the IOAC assessee group.

Conglomerate Exercise (CONG)

Only two of the assessor ratings for this exercise showed significant

relationships with the criterion. For the IOBC assesseees, ratings of "energy and vigor" were negatively correlated ($r = -.26$, $p < .05$) indicating that low energy and vigor were more apt to be related to high field leadership ratings. For the BIOCC assesseees, the "receptivity" rating showed a positive correlation with the criterion ($r = .36$, $p < .05$). Assesseees who were rated higher on the "receptivity" dimension (listening to and considering ideas of others) were more apt to receive high field leadership ratings.

Assessor ratings on the Conglomerate Exercise failed to predict the criterion for the ANCOES and IOAC groups.

Radio Simulate

Assessor ratings on the Radio Simulate exercise were almost completely unrelated to the field leadership criterion. Only for the ANCOES assesseees was one significant relationship found for the rating of "adaptability" ($r = -.28$, $p < .05$). In this case, poor NCO performance on the exercise was related to high criterion performance.

In-Basket

Assessor ratings on this exercise showed significant relations to the criterion for all groups but the IOBC assesseees. For IOAC captains, the field leadership criterion was positively related to good assessor ratings on "decision making" ($r = .29$, $p < .05$) and "use of available information" ($r = .36$, $p < .05$). For BIOCC assesseees high criterion ratings were related to good performance on "written communication" ($r = .27$, $p < .05$) and "task orientation" ($r = .35$, $p < .05$).

All significant relationships between In-Basket assessor ratings and ANCOES field leadership ratings were negative. Good criterion ratings were related to poor "directing ability" ($r = -.27$, $p < .05$) and poor "task orientation" ($r = -.37$, $p < .05$).

Appraisal Interview

No assessor rating was significantly related to the criterion for the IOBC, IOAC and BIOCC assessee groups for this exercise. For the ANCOES assessee group two dimensions: "ability to organize" ($r = -.33$, $p < .05$) and "use of information" ($r = -.29$, $p = .05$), were related. The negative correlations indicate that poor "ability to organize" and poor "use of information" on the exercise were related to good field leadership ratings.

Writing Exercise

Assessor ratings on "accuracy of written information" were significantly related to the criterion for both the IOBC and IOAC groups

($r = -.27$ and $r = -.29$, respectively, $p < .05$ for both). The negative relationship indicates that poorer writing accuracy was related to better field leadership ratings. The other significant relationship for this exercise was "spelling" which for the ANCOES assesseees was related positively to the criterion ($r = .28$, $p < .05$).

Assessor ratings on the Writing Exercise failed to predict the criterion for the BIOCC group.

Assigned Leader Group Exercise (ALGE)

All assessee groups except the IOAC captains completed this exercise. This exercise was successful in predicting the criterion for the ANCOES group. High assessor ratings on two dimensions were associated with high field leadership ratings. These were "emergent leadership" ($r = .29$, $p < .05$) and "group facilitation" ($r = .29$, $p < .05$). Interestingly, these were the two dimensions on the exercises that were classed as "follower behaviors". The other significant relationship indicated that low assessor ratings on "flexibility" were associated with high scores on the criterion ($r = -.30$, $p < .05$).

The ALGE assessor ratings provided no significant correlations with the criterion for the remaining IOBC and BIOCC assessee groups.

Leader Game (LGAM)

Only the IOAC Captains participated in this exercise (it took place of the ALGE for this group). One of the assessor-rated dimensions, "flexibility," was correlated negatively with the criterion. Good criterion ratings were related to poor "flexibility" ($r = -.36$, $p < .05$). Among the nonsignificant assessor ratings, dimensions of "organization", "leadership" and "planning", which would be expected to have strong relations to a leadership criterion did not even approach significance.

2. PEER-RANKINGS ON GROUP EXERCISES

Leaderless Group Discussion

The six group members who participated in this exercise ranked all six members on a number of different dimensions at the end of the exercise. No significant predictors of the criterion were found for any of the dimensions on which peer rankings were made.

Conglomerate Exercise

Similar rankings were obtained from group members in this exercise with similar results, i.e., no significant relationships with the criterion for any assessee group.

Assigned Leader Group Exercise

More predictive validity was found for peer-rankings in this exercise. In fact three of the four dimensions provided significant criterion predictors for the ANCOES assessee group. These were "ability to lead" ($r=.29, p<.05$), "quality of leader support" ($r=.28, p<.05$), and "generating group morale" ($r=.33, p<.05$). These positive correlations indicate that high-ranked individuals on the exercise tended to receive the high field leadership ratings. The only other significant correlation for this exercise appeared for the BIOCC assessee group for a ranking of "how much you would like to associate with them socially" ($r=.30, p<.05$). Persons preferred for socialization were more apt to be rated high on the criterion.

Leader Game

This exercise did not produce any significant peer-ranking correlations with the criterion for the IOAC assessees who participated in it.

3. SELF-RANKINGS ON GROUP EXERCISES

Leaderless Group Discussion

The assessee included himself in the group rankings for this exercise and his self-ranking was tested also as a predictor of the criterion. Only one of these scores was found to predict the criterion. This was the self-ranking on "idea quality" ($r=.32, p<.05$) for the ANCOES assessees. Persons who ranked themselves higher on this dimension were more apt to receive high field leadership ratings.

Conglomerate

Three self-rankings were significantly associated with the criterion on this exercise for the ANCOES assessees. These were "popularity" ($r=.29, p<.05$), "energetic support of team effort" ($r=.34, p<.05$), and "causing conflict within the group" ($r=.29, p<.05$). High "popularity", high "energetic support of team effort" and low "amount of conflict" were related to high ratings of field leadership. For the IOAC group, self-rankings of "idea quality" were related positively to the criterion ($r=.31, p<.05$). IOBC and BIOCC assessees did not produce significant self-ranking predictors for this exercise.

Assigned Leader Group Exercise

The ANCOES assessee group produced the only significant self-ranking predictors for this exercise. These were for dimensions of "ability to lead" ($r=.32, p<.05$) and "generating group morale" ($r=.30, p<.05$). The

positive correlations indicate high self-rankings were related to good ratings on the field leadership criterion. IOBC assessees did not produce significant self-ranking predictors and the IOAC assessees did not participate in this exercise.

Leader Game

As with peer-rankings, self-rankings produced no significant correlations with the criterion for the IOAC assessees who were the only participants of this exercise.

4. ENTRY INTERVIEW PERFORMANCE EVALUATION

Six of the 14 scores of the Entry Interview significantly predicted the field leadership ratings of the BIOCC assessee group. These were "overall impression" ($r=.42, p<.01$), "interest in self-development" ($r=.28, p<.05$), "effectiveness in conveying information" ($r=.35, p<.05$), "derives satisfaction from work accomplishments" ($r=.31, p<.05$), "fluent and articulate" ($r=.29, p<.05$), and "how well he expresses his opinions" ($r=.29, p<.05$). These positive correlations indicate that good Entry Interview ratings were related to good field leadership criterion ratings.

The ANCOES assessees who were rated high on "animation and enthusiasm" were much more apt to receive high criterion ratings than their lower-rated colleagues ($r=.45, p<.01$). For this group "interest in self-development" was inversely related to the field leadership ratings ($r=-.29, p<.05$). The only other significant predictor from the Entry Interview was for the IOBC group. As for the ANCOES group, "interest in self-development" was correlated negatively with field ratings of leadership ($r=-.27, p<.05$).

5. PENCIL AND PAPER PERFORMANCE TESTS

The four tests that fall into this category are the Henmon-Nelson Test of Mental Ability, the Watson-Glaser Critical Thinking Appraisal, the Nelson-Denny Reading Test, and the Social Insight Test. Only for the ANCOES assessee group did these measures successfully predict the field leadership ratings criterion. However, it is questionable to use the term "successfully" since poor performance on the Henmon-Nelson Quantitative ($r=-.30, p<.05$); Henmon-Nelson Verbal ($r=-.41, p<.01$), Henmon-Nelson Total Score ($r=-.40, p<.01$); Nelson-Denny Vocabulary ($r=-.36, p<.05$); Nelson-Denny Comprehension ($r=-.32, p<.05$) and Nelson-Denny Total ($r=-.37, p<.05$) were related to good ratings on the field leadership criterion. The Watson-Glaser Critical Thinking Appraisal and The Social Insight Test showed no significant correlations with the criterion for any of the assessee groups.

6. SELF-DESCRIPTION INSTRUMENTS

Edwards Personal Preference Schedule (EPPS)

One of the highest correlations obtained with the criterion was from this instrument. IOAC assesseees with a high "Need for Order" tended to be rated higher on the field ratings of leadership ($r=.52, p<.001$). In addition, the IOAC assesseees showed an inverse relationship between "Need for Succorance" (to have others provide help when in trouble, to seek encouragement from others, etc.) and the criterion ($r=-.35, p<.05$).

The ANCOES assessee group also showed a number of significant correlations between EPPS measures and the criterion. "Need for Exhibition" was inversely related to the criterion ($r=-.31, p<.05$), and "Need for Abasement" was related positively ($r=.28, p<.05$). No EPPS measures were significantly related to the criterion performance of the BIOCC and IOBC assesseees.

Work Environment Preference Schedule (WEPS)

High scores on this measure "typify individuals who accept authority, who prefer to have specific rules and guidelines to follow, who prefer impersonalized work relationships, and who seek the security of organizational and in-group identification." One of the assessee groups showed significant correlations on this measure with the criterion of field leadership ratings. IOAC assesseees who were higher on the WEPS were more likely to receive high criterion ratings ($r=.32, p<.05$). The BIOCC and ANCOES groups did not have significant correlations with the criterion on this measure.

Leader Opinion Questionnaire (LOQ)

ANCOES assesseees scoring high on "Consideration" on the LOQ were more apt to be rated high on the criterion ($r=.36, p<.05$). IOBC assesseees who were high on "Structure" were more apt to be rated high on the criterion ($r=.25, p<.05$). No other LOQ scores were significant for these or for the other assessee groups.

Leadership Q Sort (LQS)

IOBC assesseees showed a fairly strong relationship of "Decision Making" to the criterion with the persons scoring low on this dimension being more apt to receive high leadership ratings ($r=-.39, p<.01$). "Teaching and Communication" scores, on the other hand were positively related to the criterion for the IOBC group ($r=.27, p<.05$). High scores on "Mental Health" were related to high criterion ratings for the ANCOES assesseees ($r=.33, p<.05$) while low scores on "Personal Integrity" were related to high criterion ratings for this group ($r=-.30, p<.05$).

IOAC assesseees showed an inverse relation between "Consideration" scores and the criterion ($r = -.36, p < .05$). BIOCC assesseees showed no significant relationship of LQS measures to the criterion.

Person Description Blank

Fifty pairs of adjectives were presented to each assessee (e.g. WARY: 1 2 3 4 5 6 7: GULLIBLE) with instructions to rate himself by circling the number that best described his position between these polar adjectives. Twenty-six of these fifty pairs produced significant correlations with the criterion for at least one of the assessee groups. The pairs of adjectives and their correlations with the criterion for each assessee group are presented in Table 2. Positive correlations indicate that persons who rated themselves higher than average on the rightmost adjective were more apt to be rated high on field leadership. Negative correlations indicate that persons who rated themselves higher than average on the leftmost adjective were more apt to be rated high on field leadership. A negative correlation does not necessarily mean that people were closer to the "1" end of the scale than to the "7" end of the scale. It only indicates that persons who were on the "1" side of the overall average for that item were more apt to be rated high on the criterion.

COMPARISON OF DIFFERENT CLASSES OF ACTR SCORES

Table 3 presents summary data for all assessee groups for the six classes of ACTR scores. It can be seen that the number of scores per assessee (Column 1) varied from 9 for the Pencil and Paper Performance Tests to 75 for the Self-Description Instruments. The assessor time per score (Column 4) showed a very wide variation from 14.5 minutes per score for Assessor Ratings on Formal Exercises to less than one minute per score for the Self-Description Instruments. The latter small time per score reflects the assessor time savings that resulted from presenting the Self-Description Instruments in a group (six assesseees) setting. The zero "assessor times per score" that appear for Peer Rankings and Self Rankings reflect the fact that these scores were provided by the assesseees and did not require any additional time of assessors beyond that required for the assessor ratings on these exercises. The "assessee time per score" (Column 6) is prorated over Assessor Ratings, Peer Rankings and Self Rankings. Thus only a single figure is shown for this column for these three categories. It can be seen that assessee time per score is also long for the Formal ACTR Exercises. Assessee time per score is longest for the Pencil and Paper Performance Tests and shortest for the Self-Description Instruments.

A successful predictor is defined in this report as one which has a correlation with the criterion that is significant at the .05 level. In Column 2 of Table 3 the average number of successful predictors per assessee is given and Column 3 shows the percentage that this is of the

Table 2
 PERSONAL DESCRIPTION BLANK (PDB) "YOURSELF" SCORE
 CORRELATIONS WITH CRITERION

PDB Descriptor	Assessment Group			
	IOAC	IOBC	BIOCC	ANCOES
Noncompetitive (1) competitive (7)	.26	.45(.001)**	.25	-.17
Clumsy (1) Graceful (7)	.19	.20	.31(.026)*	.12
Understandable (1) Mysterious (7)	-.32(.029)*	.03	.13	-.09
Insensitive (1) Sensitive (7)	-.02	.40(.004)**	.12	-.05
Yielding (1) Firm (7)	.14	.29(.026)*	-.10	.41(.005)**
Tough (1) Tender (7)	-.39(.009)**	-.17	.17	-.31(.030)*
Military (1) Unmilitary (7)	-.20	.16	.18	-.28(.042)*
Wary (1) Gullible (7)	-.49(.001)**	-.45(.001)**	-.11	-.19
Indecisive (1) Decisive (7)	.07	.27(.035)*	-.12	.16
Careful (1) Reckless (7)	-.16	-.10	-.01	-.38(.009)**
Cowardly (1) Brave (7)	-.04	.04	-.13	.33(.023)*
Insincere (1) Sincere (7)	-.11	.15	-.39(.006)**	.16

* .05, ** .01

Table 2 (cont'd)

PERSONAL DESCRIPTION BLANK (PDB) "YOURSELF" SCORE

CORRELATIONS WITH CRITERION

PDB Descriptor	Assessment Group			
	IOAC	IOBC	BIOCC	ANCOES
Leading (1) Following (7)	-.24	-.31(.020)*	-.04	-.15
Passive (1) Active (7)	.34(.022)*	.15	-.11	.22
Soothing (1) Irritating (7)	.03	-.24	-.18	-.39(.008)**
Ambitious (1) Complacent (7)	-.36(.016)*	-.19	-.10	-.12
Boring (1) Interesting (7)	-.22	.18	.03	.27(.048)*
Quiet (1) Talkative (7)	-.31(.031)*	.06	-.11	.07
Secretive (1) Open (7)	-.34(.021)*	.02	-.78(.041)*	.18
Mission-oriented (1) People-oriented (7)	-.32(.028)*	.19	.21	-.19
Colorful (1) Colorless (7)	.12	-.18	-.13	-.32(.025)*
Hard-working (1) Easy-Going (7)	-.44(.003)**	-.12	-.10	-.25
Dominating (1) Submissive (7)	-.29(.043)*	.03	.12	-.13
Stable (1) Changeable (7)	-.33(.023)*	.03	.07	.06
Unathletic (1) Athletic (7)	.20	.20	.31(.025)*	.44(.003)**
Disorganized (1) Organized (7)	.20	.37(.006)**	.02	.18

* .05, ** .01

Table 3

RESULTS FOR SIX DIFFERENT CLASSES OF ACTR SCORES -
ALL ASSESSEE GROUPS COMBINED

Class of ACTR Score	No. of Scores	Average Number Successful Predictors	% Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Assessor Ratings Formal Exercises	68	5.75	8.46	14.50	171.43	14.24	165.00
Peer Rankings Formal Exercises	15.25	1	5.56	0	0	^a	^a
Self Rankings Formal Exercises	15.25	1.75	11.48	0	0	^a	^a
Entry Interview	14	2.25	16.07	4.64	28.89	4.64	28.89
Pencil & Paper Performance Tests	9	1.50	16.67	2.96	17.78	17.78	106.67
Self-Description Instruments	75	10.75	14.33	.30	2.12	1.83	12.74

^aPeer and self-rankings included with assessor ratings for these calculations.

total number of scores for the assessee. Five percent would be expected by chance due to the .05 significance level. This figure ranges from a high of 16.7% for the Paper and Pencil Performance Tests to near chance levels (6.6%) for the Peer-Rankings. The high figure for the Pencil and Paper Performance Tests is somewhat misleading since all of the significant predictors were for the ANCOES group and all indicated poor pencil and paper test performance to be related to good field ratings (see below). Perhaps the most interesting data is in Column 5 where the assessor time per successful predictor for each class of ACTR score is shown. This ranges from slightly over 2 minutes per successful predictor for the Self-Description Instruments to nearly three hours per successful predictor for the Assessor Ratings of Formal Exercises.

The assessor ratings of formal exercises represent the most typical ACTR data and their collection is the raison d'etre of an assessment center. The poor predictions from these rating scores compared to interviews, and to questionnaires is thus especially disappointing for ACTR proponents. The poor performance is not a result of low rating reliability. Checks of rater reliability on the exercises where more than one assessor rated the same assessee indicated that reliability of the ratings was surprisingly good. Spearman-Brown calculations indicate three-rater sums for LGD, ALGE, CONG and LGAM to have reliabilities in the 70s and 80s.

The high reliability of the criterion field leadership ratings was described earlier. Since both criterion and assessor ratings are reliable, the failure of the assessor ratings to provide more than a few significant correlations with the criterion must reflect some failure of the ACTR exercises to elicit and/or measure the same behaviors that peers, superiors and subordinates in field units classify as "leadership".

Tables 4, 5, 6 and 7 provide the data of Table 3 with a separate breakdown by the different assessee groups. It can be seen that the ACTR scores for the ANCOES (Table 7) provide much better prediction of the criterion than the ACTR scores of any of the other assessee groups. However, a sizable portion of the significant criterion predictors for ANCOES represent a troublesome inverse relation between ACTR performance and the criterion. One normally would not intentionally set up an ACTR with the intent of selecting for promotion or employment only those persons who do badly on the ACTR tasks. These inverse relationships between predictor and criterion reflect a failure of the ACTR exercises, the unsuitability of the criterion, or both - at least for the ANCOES group.

The different classes of ACTR scores show different patterns of success for the different assessee groups. For example, the Entry Interview does an excellent job for the BIOCC group (43% successful predictors) but it does little predicting for any other group. For IOAC assessees, the Self-

Table 4

RESULTS FOR SIX DIFFERENT CLASSES OF ACTR SCORE: IOBC ASSESSEES

Descriptor	No. of Scores	Number Successful Predictors	% Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Assessor Ratings	68	5	7.35	14.52	197.44	14.03	275.00
Peer Rankings	15	0	0	0	0	a	a
Self Rankings	15	0	0	0	0	a	a
Entry Interview	14	1	7.14	4.64	65.00	4.64	65.00
Pencil & Paper Performance Tests	9	0	0	2.96	∞	17.78	∞
Self-Description Instruments	75	10	13.33	.30	2.28	1.83	13.70

^aPeer and self-rankings included with assessor ratings for these calculations.

Table 5

RESULTS FOR SIX DIFFERENT CLASSES OF ACTR SCORE: IOAC ASSESSEES

Descriptor	No. of Scores	Number of Successful Predictors	% Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Assessor Ratings	68	4	5.88	14.43	245.30	14.85	297.00
Peer Rankings	16	0	0	0	0	a	a
Self Rankings	16	1	6.25	0	0	a	a
Entry Interview	14	0	0	4.64	∞	4.64	∞
Pencil & Paper Performance Tests	9	0	0	2.96	∞	17.78	∞
Self-Description Instruments	75	15	20.00	.30	1.52	1.83	9.13

^aPeer and self-rankings included with assessor ratings for these calculations.

Table 6

RESULTS FOR SIX DIFFERENT CLASSES OF ACTR SCORE: BIOCC ASSESSEES

Descriptor	No. of Scores	Number of Successful Predictors	Z Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Assessor Ratings	68	4	5.88	14.52	246.80	14.03	275.00
Peer Rankings	15	1	6.67	0	0	a	a
Self Rankings	15	0	0	0	0	a	a
Entry Interview	14	6	42.86	4.64	10.83	4.64	10.83
Pencil & Paper Performance Tests	9	0	0	2.96	∞	17.78	∞
Self-Description Instruments	75	4	5.33	.30	5.71	1.83	34.25

^aPeer and self-rankings included with assessor ratings for these calculations.

Table 7

RESULTS FOR SIX DIFFERENT CLASSES OF ACTR SCORE: ANCOES ASSESSEES

Descriptor	No. of Scores	Number of Successful Predictors	Z Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Assessor Ratings	68	10	14.71	14.52	98.72	14.03	72.37
Peer Rankings	15	3	20.00	0	0	a	a
Self Rankings	15	6	40.00	0	0	a	a
Entry Interview	14	2	14.29	4.64	32.50	4.64	32.50
Pencil & Paper Performance Tests	9	6	66.67	2.96	4.44	17.78	26.67
Self-Description Instruments	75	14	18.67	.30	1.63	1.83	9.79

^aPeer and self-rankings included with assessor ratings for these calculations.

Description Instruments do a good job of predicting the criterion but the other classes of score have little predictive validity.

Table 8 represents a breakdown of the data in Table 3 by separate exercise. The most effective single measure by almost all criteria is the Person Description Blank. This instrument required less than ten minutes to administer but provides much more effective criterion prediction than exercises such as the Radio Simulate which required over five hours of assessee time, and even more assessor time. However, it can be argued that self-descriptions would be much less effective in a setting where deliberately falsified self-descriptions might occur. False self-descriptions would have been at a minimum in the USAIS ACTR since the assesseees were assured that the data would not affect their careers.

DISCUSSION

Two perspectives exist for discussion of these results. One is in terms of the specific characteristics as measured in the ACTR which predict field leadership ratings of the different assessee groups. The other perspective is from the general question of what parts of the ACTR were effective in assessment of leadership.

CHARACTERISTICS OF SPECIFIC ASSESSEE GROUPS

The young lieutenant who had recently been commissioned who was rated high on leadership by peers, subordinates and superiors, following his Infantry course, judged himself to be more wary, competitive, sensitive and organized. His decision-making skills were rated lower by himself and by trained assessors. Ironically, he was judged to be somewhat lower on self-development than the lieutenant who was rated more poorly on field leadership.

The captain, about to enter the Advanced Infantry Course, who later received high ratings on the field leadership criterion, was apt to be high on his need for order and more apt to prefer a structured work environment. He performed well on in-basket exercises and viewed himself as more hard-working, wary and tough.

The enlisted man about to enter Officer Candidate School who was rated high on field leadership following his OCS training and Branch leadership course, was more apt than his low-rated colleague to make a good impression and to be fluent, creative and task-oriented. He viewed himself as more creative and persistent, yet somewhat less dominating and less sincere than his colleague who fared less well on field leadership ratings.

The NCO about to enter the advanced NCO course, who later received high ratings of field leadership, was more enthusiastic but poorer in reading, quantitative and verbal skills than his colleague who received

Table 8

RESULTS FOR SEPARATE ACTR EXERCISES FOR ALL ASSESSEE GROUPS

Descriptor	No. Scores	Avg. No. Success Predictors	% Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
<u>Assessor Ratings</u>							
Leaderless Grp. Discussion	9	1.25	13.89	7.78	56.00	6.67	93.33
Conglomerate	8	.50	6.25	7.50	120.00	6.67	80.00
Radio Simulate	16	.25	1.56	29.06	1860.00	24.38	1560.00
In-Basket	14	1.50	10.71	7.86	73.33	18.57	173.33
Appraisal Interview	8	.50	6.25	18.54	296.7	26.25	420.00
Writing Exercises	4	.75	18.75	8.33	44.44	15.00	80.00
<u>Assigned Leader</u>							
Group Exercise	9	1.00	11.11	16.67	150.00	17.65	100.00
War Game (IOAC)	9	1.00	11.11	15.93	143.33	21.58	410.00
<u>Peer Ranking</u>							
LGD	6	0	0	0	0	a	a
Cong	5	0	0	0	0	a	a
ALGE	4	1.33	33.33	0	0	a	a
War Game	5	0	0	0	0	a	a
<u>Self-Ranking</u>							
LGD	6	.25	4.17	0	0	a	a
Cong	5	1.00	20.00	0	0	a	a
ALGE	4	.67	16.67	0	0	a	a
War Game	5	0	0	0	0	a	a
<u>Entry Interview</u>	14	2.25	16.07	4.64	28.89	4.64	28.89
<u>Performance Tests</u>							
Henmon Nelson	3	.75	25.00	2.22	8.89	13.33	53.33

Table 8 (cont'd)

RESULTS FOR SEPARATE ACTR EXERCISES FOR ALL ASSESSEE GROUPS

Descriptor	No. Scores	Avg. No. Success Predictors	% Successful Predictors	Assessor time per Assessee Score (min)	Assessor time per Successful Predictor (min)	Assessee time per Score (min)	Assessee time per Successful Predictor (min)
Nelson-Denny	4	.75	18.75	1.67	8.89	10.00	53.33
Watson-Glaser	1	0	0	8.33	∞	50.00	∞
Social Insight	1	0	0	5.00	∞	30.00	∞
<u>Self-Description Instruments</u>							
Edwards Personal Preference Schedule	15	1.00	6.67	.56	8.33	3.33	50.00
Work Environment Preference Schedule	1	.25	25	1.67	6.67	10.00	40.00
Leadership Opinion Questionnaire	2	.50	25.00	1.67	6.67	10.00	40.00
Leadership Q Sort.	7	1.25	17.86	1.19	6.67	7.14	40.00
Person Description Blank	50	7.75	15.50	.02	.15	.14	.90

^a Peer and self-rankings included with assessor ratings for these calculations.

lower field leadership ratings. He was more considerate, but less able to perform on in-basket exercises and in simulated emergencies. He viewed himself as more athletic, firm, careful and soothing than did his low-rated colleague.

PREDICTIVE VALIDITY OF DIFFERENT CLASSES OF ACTR SCORES

Self-Description Instruments provided the largest proportion of criterion predictors and also provided these scores with the least assessor and assessee time. On the other hand, the most assessor-intensive formal ACTR exercises actually do the poorest job of predicting the field leadership criterion. Intermediate between these extremes is the Entry Interview which provided a fair number of predictors with only a moderate amount of assessor and assessee time.

These results must be somewhat distressing to proponents of the assessment center concept. Such formal exercises as the In-Basket, Assigned Leader Group Exercise and Leaderless Group Discussion are the backbone of such centers. For such exercises to predict poorly in the current setting, despite good to excellent reliability of predictor and criterion measures, indicates a mismatch between the ACTR exercise measures and the criterion scores. A possible explanation of this mismatch is that the ACTR was more effective in eliciting leadership skills than the subsequent duties of these leaders. The USAIS ACTR exercises probably did provide tough challenges to leadership and actual leadership skills were probably demonstrated by assessees and rated by assessors. However, the criterion ratings were made during peacetime when few if any emergencies would arise which required excellent leadership for their successful resolution. As a result, the criterion ratings may have been made on some other factor than leadership such as sociability. Another possible basis for field ratings may have been the leadership self-conceptions that the assessees held and somehow communicated to the superiors, peers and subordinates who provided the criterion ratings. With few if any opportunities for assessees to demonstrate genuine leadership, this "talk about leadership" may have been the basis for leadership ratings. Not only would this account for the general failure of assessor-intensive exercises to predict the criterion, it would explain the relative success of instruments such as the Person Description Blank which were specifically designed to obtain leadership-related self conceptions.

Future validation studies planned for the USAIS ACTR assessees will utilize promotion data and performance in their leadership courses as leadership criteria. Hopefully, promotions of these leaders would be related to actual leadership skills and not to sociability or to incorrect self-perceptions of leadership skills.

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