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ABSTRACT

In order to improve on their selection, promotion, and identification decisions regarding high level management personnel, many large corporations, some small ones, and several governmental agencies have resorted to the assessment center approach. Briefly, the assessment center is an intensive multiple-techniques evaluation process. Candidates for assessment are brought in small groups of from eight to twelve to a testing location and run through a battery of tests over a 2- or 3-day period. These often include paper-and-pencil psychological measures, projective measures, interviews, and both individual and group situational tests. The situational tests are often miniature job situations. Candidates are evaluated by several trained assessors, who are usually successful high-level managers and sometimes are psychologists. This report is an annotated bibliography of published articles on assessment centers. Several types of articles appear: general publicity articles, reports on the implementation of an assessment center, research studies investigating methods of achieving over-all ratings of potential, and reports on validities of assessment center programs. The general finding in the reports described is that assessment center evaluations are more predictive of future management success than the traditional evaluations which are based on supervisors' reports, paper-and-pencil tests, and interviews. (MV)

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ASSESSMENT CENTERS:
AN ANNOTATED BIBLIOGRAPHY

By

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May 1977
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This report contains a compilation of published reports dealing with assessment centers and assessment center research. The reports include general information articles, reports on the implementation of an assessment center, research studies to determine the best method of arriving at a single overall evaluation of managerial potential from assessment center data, and reports on validities of assessment center evaluations. Not included are the many related studies on individual assessment techniques; such as in-basket exercises or leaderless group discussions since they have been used independently of assessment centers.

The general finding, in the reports described, is that assessment center evaluations are more predictive of future management success than the traditional evaluations based on supervisor's reports, paper-and-pencil tests, and interviews.

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PREFACE

The work reported in this study was accomplished under project 7719, Air Force Personnel Systems Development on Selection, Assignment, Evaluation, Quality Control, Retention, Promotion and Utilization; task 771917, Development of Criteria for Validation of Selection and Classification Procedures.

ASSESSMENT CENTERS: AN ANNOTATED BIBLIOGRAPHY

INTRODUCTION

Management selection from first-line to executive level has become an extremely vital issue to business, government, and military organizations. Early identification of high level management potential is also important. There are indications that incompetent managers are inclined to remain with an organization, but that those managers with greatest potential will leave if they are held down too long in lower management positions. Incorrect selection and failure to identify high potential managers early are not problems that eventually work themselves out.

In order to improve on their selection, promotion, and identification decisions, many large corporations (and some small ones) as well as several governmental agencies have resorted to the assessment center approach. The military, in particular the Army, is researching this method. The assessment center method has made rapid gains in acceptance by management in a short period of time. It was first applied by German military psychologists early in World War II and was then adapted by the British for screening officer candidates. The U.S. Office of Strategic Services took the approach from the British during the war. American Telephone and Telegraph adapted this multiple assessment technique to the business world in the mid-fifties. From there, it has spread to many corporations.

Briefly, the assessment center is an intensive multiple-techniques evaluation process. Candidates for assessment are brought in small groups of from 8 to 12 to a testing location which may be on company grounds, in a motel, or even at a resort. The assessees are run through a battery of tests over a 2- or 3-day period. The tests often include paper-and-pencil psychological measures, projective measures, interviews, and both individual and group situational tests. The situational tests are often miniature job situations. The candidates are evaluated by several specially trained assessors, usually made up of successful high-level managers and sometimes including psychologists.

The assessment center program holds several advantages over previous supervisor-oriented selector systems. The assessors are rigorously trained and usually non-acquaintances of the assessees. The program focuses the attention of the assessors directly on the job-pertinent behaviors of the candidates. The tests (or exercises) are job related so the pertinent behaviors are forced out of the candidates. The exercises are standardized, and all candidates compete in them, often together, so the assessors have clear comparisons on which to base evaluations. The candidates themselves feel that the assessment center program gives them a fair and equal chance to demonstrate their abilities. Finally, since the exercises are job-specific, it is felt that assessment center programs can be fair to women and minorities.

This report is an annotated bibliography of published articles on assessment centers. Several types of articles appear: general publicity articles, reports on the implementation of an assessment center, research studies investigating methods of achieving over-all ratings of potential, and reports on validities of assessment center programs. Not included are the many related reports on individual assessment techniques, such as in-basket exercises or leaderless group discussions since these have been used independent of assessment centers.

One further note on non-inclusions is called for. In the early fifties, the Institute of Personality Assessment and Research (IPAR) at Berkeley conducted a live-in assessment of 100 Air Force officers. The IPAR study generated several dozen papers. For brevity, only a few summary-type articles are included.

This bibliography contains an index of articles listed alphabetically by author. The annotations follow and are in the same order.

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1. Acker, S. R., & Perlson, M. R. *Can we sharpen our management of human resources?* Corporate Personnel Department, Company Distribution, Olin Corporation, 1971.

This article reports the implementation of an assessment center program for selection of management-type foremen by a division of Olin Corporation.

The assessment center method is justified as a program which permits fixed standards of evaluation. The 1 day (Saturday) center assessed 32 candidates with all assessors coming from within the Corporation.

The candidates were assessed in four groups approximately 1 week apart with the same assessors used each time. It was found that the assessors developed stricter standards during this period and, also, that their ratings began to agree more closely over the period.

No validation was made. However, the program was believed successful because of the training and experience received by the assessors and because of the acceptance by and developmental benefit to the assessees.

2. Bray, D. W. The management progress study. *American Psychologist*, 1964, **19**, 419-420.

This note briefly describes the Management Progress Study, a longitudinal investigation of the young businessman begun by the Bell System in 1956. The subjects are 422 men, two-thirds of whom were new college graduates and of whom the remaining third were vocational employees who quickly climbed into lower level management.

The subjects spent 3½ days at an assessment center in groups of 12. The assessment procedures included objective and projective tests, individual and group situational tests, and interviews. Each man was assessed on 25 variables, and a narrative summary was prepared. No feedback to the company nor to the assessees occurred.

An annual follow-up procedure includes an interview with the subject and collection of data from company sources containing significant features of the work environment.

The exploitation of the data had not yet been done, however, it was expected to contribute to the basic understanding of the nature of adult human behavior.

3. Bray, D. W. The assessment center: Opportunities for women. *Personnel*, 1971, **48**(5), 30-34.

Many organizations want to open up channels of advancement for the women now on their payrolls in jobs of little scope or opportunity, but management hesitates because of doubts that it can accurately identify those with high potential.

The author feels that the assessment center can make a major contribution to this problem. It is a demonstrated way to increase the accuracy of selection. Line managers accept the results more easily than other evaluation methods. Personal feedback interviews with successful candidates indicated that their performance in competition encouraged them to accept the risks of transfer and accelerated advancement.

The assessment center also offers promise as an early identification program so that the more capable members of this and other "minority" groups will not go on for years in unrecognized, routine jobs.

4. Bray, D. W., Campbell, R. J., & Grant, D. L. *Formative years in business: A long-term AT&T study of managerial lives.* New York: John Wiley & Sons, 1974.

This book is the first major report drawn from the data of the Management Progress Study. The study is a longitudinal research on the life of managers in the Bell System. An integral part of the assessment method is the assessment center.

The book covers 8 years of the study, a period begun with an assessment center evaluation and ended with a second assessment center evaluation for each subject.

The importance of selection is reaffirmed. The average recruit did not improve in his management abilities even after 8 years on the job. Attrition did not purify the recruit stream; the more capable leave often enough on their own to counterbalance the less capable who are asked to leave.

The ability to select well is indicated. Approximately 56% of the highly assessed group survived and had achieved middle management while only 19% of all other recruits did so. It is the author's conclusion that while interviews and paper-and-pencil tests are of great use in selection procedures, the extra effort involved in an assessment center program is well worth undertaking. The assessment center tends to transcend any individual assessment techniques and contributes significantly to improved selection.

5. Bray, D. W., & Grant, D. L. The assessment center in the measurement of potential for business management. *Psychological Monographs*, 1966, **80** (17 Whole #625).

This monograph reports the results of an initial investigation into the assessment center portion of the Bell System's Management Progress Study. This longitudinal study (intended to cover at least 10 years for each subject) has been protected from contamination by the assessment results.

The 422 subjects were either college graduates assessed soon after employment or non-college graduates who had risen to management positions. The subjects spent 3½ days at the assessment center in groups of 12. Predictions were given as middle management material, questionable, and not middle management material. Criteria were level of management achieved and salary difference after a time period of between 4 to 8 years for each assessee.

For the combined samples of those predicted to make it to middle management, 42% had succeeded to that level and 4% remained at the lowest level. Of the questionables and low predicted men, only 7% achieved middle management and 42% were still at the lowest level. The staff predictions have a median correlation of .48 across the sample against salary difference.

Further analyses on procedures indicated that situational methods and then paper-and-pencil tests were more predictive of progress than personality questionnaires. Projective methods and interviews were not yet analyzed.

6. Byham, W. C. Assessment center for spotting future managers. *Harvard Business Review*, 1974, **48**(4), 150-167.

This descriptive article explains how the assessment center works, argues its superiority over other assessment methods, and describes the steps a company should go through in developing its own center.

The accuracy of assessment center programs is ascribed to the fact that the exercises used for appraisal are designed to bring out the specific skills and aptitude needed. The procedures are standardized and permit comparative judgements which are free of personal emotion. The assessors are trained and the procedure focuses their attention on the behavior consistent with the evaluation to be made.

Validation studies are discussed. Assessment center correlations with subsequent performance range from .27 to .64. Also, studies comparing the success of candidates promoted with assessment to those promoted without assessment show a 10% to 30% edge for the assessment center selections.

Costs of large company assessment centers are estimated at around $500 per assessee when candidate and assessor salaries are considered. Suggestions for cutting these costs for small companies include using company property for the location of the center, reducing the length to 1 work day or 1 weekend by having the individual exercises completed prior to bringing the assessees to the center, integrating the assessment into existing training programs, and using commercially available exercises.

7. Byham, W. C. The assessment center as an aid in management development. *Training and Development Journal*, 1971, **25**(12), 10-21.

This article is a review of assessment centers including their methods, growth, and validity.

A typical 2-day center is described, as is assessor training. The value of assessment centers as early identifiers of management talent is pointed out, and its value as a development device for the company and for the assessee is discussed. It is further noted that assessment center evaluations are job-related and, therefore, meet guidelines of employee selection and promotion promulgated by the Equal Employment Opportunity Commission.

A number of research and operational studies are discussed, quoting correlations between a global assessment predictor and some sort of progress criterion in the range of .35 to .51 for the "positive" studies. Several "negative" studies are briefly analyzed.

It is estimated that costs for meals and facilities at an assessment center for a group consisting of 12 participants and 6 assessors can vary from as little as $50 on company premises to as much as $3,000 at a resort. Exercise costs, salaries, and start-up costs can all vary widely.

The author concludes that while more research is needed on general validity and specific exercises, the findings to date indicate that assessment centers work.

8. Byham, W. C., & Pentecost, R. The assessment center: Identifying tomorrow's managers. *Personnel*, 1970, **47**(5), 17-28.

This is an overview article arguing the merits of the unbiased assessments obtained from a center which allows equal opportunity to each assessee. The assessments have value as a counseling device as well as a selection tool. It also pointed out that a certain amount of training occurs for the assessors.

A 3-day assessment center program is described plus a 2-day evaluation period. Various exercises are discussed. The role of assessors and their training is explained. The psychologist's role is considered in setting up, guiding, and evaluating the program.

The author concludes with a statement that more than 70,000 individuals have already been run through assessment centers in 20 companies and that at least 100 more companies are well along in planning assessment centers.

9. Byham, W. C., & Wettengel, C. Assessment centers for supervisors and managers. An introduction and overview. *Public Personnel Management*, 1974, **3**, 352-364.

The authors give a general description of an assessment center using the Wisconsin program for selection and development of career executives as an example. The exercises of the program are described in the article.

Validity is discussed. The results of 22 validity studies indicate a median criterion-related correlation of .37. Industrial studies reveal the following median correlations: .33 with job performance, .40 with promotion to positions higher than first-level management, and .63 with rated management potential. Also, a brief comparison of assessment centers with panel interviews and paper-and-pencil tests is included. The authors conclude that assessment center evaluations are more reliable than panel interview evaluations and that assessment center evaluations are better than paper-and-pencil tests because they are more job related.

A list of briefly described government agency assessment centers includes those of the Internal Revenue Service, Civil Service Commission, Federal Aviation Agency, Social Security Administration, Housing and Urban Development, U.S. Army, U.S. Air Force, Public Service Commission of Canada, Government of Manitoba, State of Illinois, City of New York Police Department, and City of Fort Collins, Colorado, Police Department.

10. Campbell, J. P., Dunnette, M. D., Lawler, E. E., & Weick, K. E. *Managerial behavior, performance, and effectiveness*. New York: McGraw-Hill, 1970.

This large volume includes a lengthy chapter on clinical studies which examines the purposes and results of the assessment center concept, with descriptive emphasis on the American Telephone and Telegraph Management Progress Study. The parts of this chapter which summarize and discuss needed research steps emphasize the necessity for assessment centers to be a product of thoughtful selection and combination of methods to gather and combine information on assessees.

11. Campbell, R. J., & Bray, D. W. Assessment centers: An aid in management selection. *Personnel Administration*, 1967, **30**(2), 6-13.

This article reports the results of a validation study of assessment center predictions. A difficulty with many follow-up studies of operational assessment programs is that only those assessees who are highly rated are promoted into management. The present study contains two control groups for comparison purposes.

Over 500 men from four companies were studied. They fell into five groups: assessed as acceptable, assessed as questionable, assessed as not acceptable, not assessed but promoted after the assessment program began, and not assessed but promoted before the program began. Two kinds of criterion data were obtained. A performance level was developed using a combination of the latest formal company appraisal rating, a supervisor's rating, and a supervisor's ranking. The performance level was a dichotomous measure, indicating that the subject performed either above average or below average. Also, a potential level (high or low) was created from formal company appraisals, present level, and supervisor's ranking of potential for advancement.

Results indicated that, among those later designated as above average performers, 68% came from those previously designated as acceptable, 65% from questionables, 46% from not acceptables, 63% from those not assessed postassessment promotion, and 55% from those not assessed preassessment promotion. Percentages of high potential men in the groups using the same order are 50%, 40%, 31%, 19%, and 28%. The assessment program appears better at selecting above average performers and is clearly superior in selecting men with high potential than the operational, nonassessment center, promotion system.

12. Cohen, B. M., & Jaffee, C. L. Assessment centers aid government agencies (Personnel Hunt:). *Government Executive*, 1973, **5**(11), 19-26.

This article briefly describes governmental agencies' use of assessment center programs.

The Public Service Commission of Canada has begun a pilot effort in its Customs and Excise Department using carefully trained assessors. The attitudes of the assessors are to be researched as well as the success rate of the predictions.

The U.S. Forest Service has begun a center program to evaluate applicants in GS 13 and 14 positions. A 6-month study has been completed revealing the dimensions important to the management requirements for district rangers, and assessment exercises are being designed.

The Internal Revenue Service has a program for first-line managers and is conducting a pilot program for middle management. Follow-up studies on the middle management project indicate the assessment center evaluations correlate significantly with job success as measured by supervisory evaluations.

The Federal Aviation Agency (FAA) uses assessment centers for selecting executives using high level company assessors as well as psychologists. In addition, the FAA uses centers for first-line air traffic supervisors as a developmental experience.

The Tennessee Valley Authority has run an assessment program for first-line supervisors.

The American Management Association has created a packaged assessment center program used in the U.S. Postal Service, a state department of transportation, four city government agencies, and two school systems. Advantages and disadvantages of a packaged program are briefly discussed.

13. Dunnette, M. D. The assessment of managerial talent. In F. R. Wickert & D. E. McFarland (Eds.), *Measuring executive effectiveness*. New York: Appleton-Century Crofts, 1974.

This is a comprehensive review and summary of the assessment center since it was developed in modern form by American Telephone and Telegraph. There is a wealth of quantitative data on assessment center validation, including the relatively "pure" studies by American Telephone and Telegraph. The validities are generally high, and the assessment predictions are useful to the organizations using them (differentially with respect to rating reports, paper-and-pencil tests, etc.). Criterion contamination is not a factor in these high validities.

The sections on factor studies and internal analyses of assessment centers are of particular value to personnel researchers studying the criterion problem with respect to rating of personnel performance and potential.

14. Finkle, R. B., & Jones, W. S. *Assessing corporate talent: A key to managerial manpower planning.* New York: Wiley-Interscience, 1970.

This is a book-length discussion of the general application of the assessment center in a modern organization. The authors' experience is with the 3-day assessment center program of the Standard Oil Company of Ohio, although specific information about this program is not given.

The background, program, administration, and application of an assessment center are covered in a general manner. The section on the program includes the format and various assessment procedures, and the section on administration deals with staffing, facilities, and record keeping. Applications covered include the general uses of manpower forecasting, manpower placement, replacement planning, manpower inventorying, and development planning. Specific uses such as feedback to the assessee, reducing forces fairly, and meeting individual needs are considered.

15. Ginsburg, L. R., & Silverman, A. The leaders of tomorrow: Their identification and development. *Personnel Journal*, 1972, **51**, 662-666.

The authors discuss the creation of what may well be the first hospital personnel identification and development center which was modeled after executive assessment centers. The assessment center program was selected because it provides equal opportunity for all assessees to display their talents under similar (but relevant situations) and to be evaluated by unbiased assessors familiar with the position requirements and the institutional climate.

The design of the 1-day center program is included with emphasis on an in-basket exercise and a leaderless group discussion. An evaluation of the center program was accomplished by comparing assessment center scores (in-basket, leaderless group discussion, and interview) of 37 administrative personnel with ratings by superiors on four dimensions (leadership, organizing, communicating, and human relations). The highest correlations were in the area of .34 to .36.

16. Glaser, R., Schwarz, P. A., & Flanagan, J. C. The contribution of interview and situational-performance procedures to the selection of supervisory personnel. *Journal of Applied Psychology*, 1958, **42**, 69-73.

This article presents the results of a study concerned with the construction and validation of interview and situational performance procedures for the selection of supervisory personnel. The unique contribution of such procedures is determined when the effects of several predictor variables are controlled.

The subjects were 80 civilian supervisors from two military depots. They were matched on a paper-and-pencil test of basic ability used as part of a supervisor selection battery and also on a test of supervisory practices from the same battery. The criterion was a single index derived from a selection of statements descriptive of job behavior, a supervisor's rating, and a special day-by-day record form kept over a 3-month period.

The predictor data included two interviews and three situational tests; panel interview (three interviewers), individual interview (one interviewer), group discussion, role-playing, and a small-job management test. The biserial correlations—representing the predictive power independent of the matching variables—are .12, .13, .17, .16, and .08, respectively.

The author concludes that these tests add a contribution to the predictive value of paper-and-pencil tests. Also, the economical individual interview appears as effective as a panel interview.

17. Grant, D. L., & Bray, D. W. Contribution of the interview to assessment of management potential. *Journal of Applied Psychology*, 1969, **53**, 24-34.

Data supporting the selection interview are not, in general, substantial. Several researchers have particularly questioned the consistency of materials covered and inter-rater reliability in the unstructured interview. The author investigates this issue using data from the Bell System Management Progress Study assessment center.

Interview reports on 348 subjects divided into a college and non-college sample were rated on 18 trait variables (explained in the article) which were used in the assessment center program. These rating scores were correlated with the judgments of the assessment staff on 11 factors, with assessment staff predictions of advancement to middle management within 10 years and with salary progress.

Interview variables correlated highly for both college and noncollege samples (about .40 or above) with various factors including personal impact-forcefulness, oral communication, energy, and need for advancement. [illegible] 36 correlations of interview variables with staff predictions of advancement, 22 are sta[illegible] significant at the .05 level. Of the 36 correlations with salary progress, half are significant at the .05 level.

It is concluded that the assessment interview reports contribute to the assessment process.

18. Grant, D. L., Katkovsky, W., & Bray, D. W. Contributions of projective techniques to assessment of management potential. *Journal of Applied Psychology*, 1967, **51**, 226-232.

A description of the assessment center used by the Bell System appears in Bray and Grant (1966). The projective techniques used were not analyzed in that article. This article was written to rectify that omission. Scores on projective tests were compared with an overall assessment rating and with an external salary criterion.

The subjects were 350 recruits to the Bell System who attended a 3½-day assessment center. During that assessment, each was measured on three projective tests, the Rotter Incomplete Sentences Blank, the Management Incomplete Sentences test, and six cards from the Thematic Apperception Test.

The criterion used was salary progress, and the predictors were ratings by two psychologists on personality variables such as optimism, adjustment, self-confidence, and achievement motivation. Scoring reliabilities were mostly above .80. Achievement motivation and leadership role correlated highest with staff predictions of overall potential (.40 and .38 for non-college and .30 and .35 for college). Also, these two variables correlated highest with salary progress (.19 to .35), and dependence and subordinate role correlated the most negatively (-.20 to -.35) with salary progress.

The projective variables with the highest correlations with overall staff predictions, while not correlating as highly as situational tests with staff predictions, did show about the same relationship with these predictions as mental ability measures and correlated higher with them than did personality questionnaires.

19. Hardesty, D. L., & Jones, W. S. Characteristics of judged high potential management personnel—The operations of an industrial assessment center. *Personnel Psychology*, 1968, **21**, 85-98.

This article describes an industrial assessment center program of a major oil company. The purpose of this 3-day live-in assessment program was to appraise personal strength, developmental needs, and probable attainment within the company of high-performing young professionals and managerial personnel. Twelve men were assessed at a time using personal history, paper-and-pencil tests, projective tests, individual and group situational exercises, sociometric measures, and interviews. The primary staff was an industrial psychologist, a clinical psychologist, and three top-level managers. The assessment center results were integrated over a 2-day period following the assessment.

Individuals judged by the assessment center to have high potential differed from the remainder of the group at the .01 level on the SCAT Total, SCAT Verbal, SCAT Quantitative, Doppelt Math Reasoning, Davis Reading Comprehension, Davis Speed Scales, and the assessment committee ratings on Motivation, Communication, Assertiveness, and Compatibility. They differed at the .05 level on Human Relations, Physical Science, and Math sections of the Michigan Vocabulary test. The high potential persons were also better educated than the remainder of the group.

20. Helme, W. H., Willemin, L. P., & Grafton, F. C. *Dimensions of leadership in a simulated combat situation*. Technical Research Report 1172. U.S. Army Behavior and Systems Research Laboratory, July 1971.

A sample of 900 officers with 1 to 2 years duty time were sent through a 3-day assessment center program for measurement on group exercises. The exercises revolved around the role of military advisor to a host nation. The first day's situational test involved peacetime preparedness, the second day's test involved a headquarters analysis of the aftermath of a surprise attack, and the third day's test involved field leadership of evacuation and reconnaissance missions.

More than 2,000 observations per man were obtained and analyzed. Eight performance factors were developed of which the two most important were combat leadership and technical/managerial leadership. In the combat leader, the cognitive aspect of behavior is shown in the use he makes of his tactical skills and in the technical/managerial leader, by his use of technical skills. The heavy non-cognitive element in combat leadership rests primarily on forcefulness in command of men, on team leadership or personal resourcefulness, and on persistence in accomplishing the mission. In technical/managerial leadership, the noncognitive element is evidenced in executive direction plus, as in combat leadership, persistence in mission accomplishment.

21. Helme, W. H., Willemin, L. P., & Grafton, F. C. *Prediction of officer behavior in a simulated combat situation*. Research Report 1182, AD-779 445. U.S. Army Research Institute for the Behavioral and Social Sciences, March 1974.

Nine hundred Army officers received a Differential Officer Battery (DOB) consisting of paper-and-pencil measures of interests, attitudes, and knowledge of military tactics, sciences, arts, and sports shortly after commissioning. One to two years later, they completed a 3-day battery of situational tests constructed to measure areas of military leadership at an Officer Evaluation Center (OEC). This report gives the relationships between the DOB factors and the OEC factors.

Combat leadership (DOB) correlated .36 with Combat leadership (OEC). Two DOB variables, Science and General Knowledge, correlated around .30 or higher with each of the OEC variables of Tactics, Technical skills, and Tech-Managerial leadership. Mechanical technology (DOB) correlated .40 with Technical skills (OEC).

If the OEC evaluation is accepted as a criterion, then results of the study show that it is possible to select new officers for assignment to combat or to technical-managerial areas according to their potentials on the Differential Officer Battery.

22. Hinrichs, J. R. Comparison of "Real Life" assessments of management potential with situational exercises, paper-and-pencil ability tests, and personality inventories. *Journal of Applied Psychology*, 1969, **53**, 425-432.

Assessment center programs are typically expensive and time-consuming processes. It must be determined (a) if assessment centers generate any benefit not normally arrived at by usual promotion analyses based on standard personnel records, (b) if the costly situational tests add anything beyond that obtained by traditional paper-and-pencil tests, and (c) what, if any, redundancies exist between paper-and-pencil tests and situational exercises.

The author investigates these issues using data gathered on 47 college educated male employees engaged in marketing activities for a large technology-based organization. The assessment center program generated 22 paper-and-pencil test scores and 12 trait-ratings based on three group and three individual situational tests. The 12 trait-ratings are reduced to three (activity, administration, and stress resistance) by factor analysis. Three criteria are employed: salary, the overall assessment evaluation, and evaluation representative of the normal promotional system.

The assessment evaluations correlate .46 with the normal promotion evaluations, and both have about the same correlations with the situational tests, the paper-and-pencil tests, and salary. This indicates that the assessment evaluation adds little to the normal promotion evaluation. It also appears that the situational tests are significant components of the assessment program but the paper-and-pencil tests do not provide much incremental variance over the situational tests.

23. Huck, J. R. Assessment centers: A review of the external and internal validities. *Personnel Psychology* 1973, **26**, 191-212.

This is a general review of the validity of assessment center programs. The following is a list of the author's conclusions.

1. Multiple assessment procedures have consistently been related to a number of performance effectiveness measures. Future studies should investigate different aspects of behaviorally relevant multiple criteria to determine which can best be predicted by the assessment process.

2. Procedures unique to the assessment center approach, essentially the situational exercises, contribute a substantial element to the prediction of managerial performance beyond that which is found in the paper-and-pencil measures alone. However multiple assessment procedures provide a number of data sources, and the contribution of each to the assessment dimensions, the final assessment ratings, and multiple criterion measures should be further clarified.

3. The assessment process focuses on the behavioral demands of a manager's job. A wide range of supervisory skills can be observed at an assessment center. Other relevant dimensions of job performance should be identified and defined, and assessment techniques designed to measure them. Likewise, those variables and exercises which can be eliminated from the assessment process without an adverse effect should be identified.

4. The assessment process usually produces acceptable reliability. This results from the intensive training provided to the assessment staffs in evaluating performance and from the standardization incorporated into multiple assessment procedures.

5. Essentially, no differences exist between psychologists and trained managers in the role of assessors. The psychologists can be most efficiently utilized in the training of assessment staffs and in research associated with the process.

6. No differential validity has been reported on subgroups of assessees or assessors with regard to sex, race, and job differences.

7. Future research should be designed to systematically investigate the effects of the assessment process on (a) the assessee—attitude, self-esteem, motivation, career planning, (b) the staff observers—training value of serving on the assessment staff, and (c) the organization—identification of training needs, morale, manpower planning, organizational change, and development.

24. Huck, J. R., & Bray, D. W. Management assessment center evaluations and subsequent job performance of White and Black females. *Personnel Psychology* 1976, 29, 13-30.

Paper-and-pencil testing has come under heavy legal fire because of the suspicion that such tests may be unfair to minority groups and women. The assessment center has an advantage in that it bases judgements directly on observed behavior. This article presents the results of a Bell System assessment study of White and Black women.

The primary sample was 91 White and 35 Black women who had been promoted to one of the two management positions for which they were assessed. A secondary sample was of 241 White and 238 Black women who were assessed but not promoted. The assessment staff rated the assessees on 16 variables (such as energy, forcefulness, written communication) and then gave an overall assessment rating.

Comparisons of those promoted with those not promoted give average ratings on the 16 variables of 3.3 and 3.0 for Whites promoted and not promoted; and 3.0 and 2.8 for Blacks. The average over-all assessment ratings for promoted versus not-promoted are 3.4 to 2.8 for Whites and 3.0 to 2.4 for Blacks.

Criteria for the primary sample included a job performance score based on supervisor's ratings and rankings and a potential for advancement based on supervisor's ratings obtained after a period of at least 1 year. For White women, the assessment rating correlated .41 on performance and .59 on potential. For Black women, the assessment rating correlated .35 on performance and .54 on rated potential. There is no significant difference between Whites and Blacks on these correlations.

It is concluded that the assessment center method appears to be very beneficial in that it gives, in an unbiased way, an opportunity to those individuals who are most capable.

25. Jaffee, C. L. Managerial assessment: Professional or managerial prerogative? *Personnel Journal*, 1966, 3, 162-163.

Based on his experience with the Bell System, the author provides general arguments for the use of successful management personnel over psychologists as assessors of managerial skill.

Differences between education and clinical testing (the typical domain of psychologists) and industrial assignment are discussed. Advantages of using management personnel over psychologists for industrial assignment include better acceptance by the assessees, the assessor training furthers the personal development of the manager, and better assignment may occur.

26. Kelly, E. L. The place of situation tests in evaluating clinical psychologists. *Personnel Psychology*, 1954, 7, 484-492.

This report investigates the validity of a battery of situational tests included in the week-long Veterans Administration assessment program designed to evaluate aptitude of graduate students for careers in clinical psychology.

Two kinds of validity were examined, the incremental validity of the situational tests for a team of judges who had already intensively studied the subjects by way of credential files, objective tests, projective tests, an autobiography, and interviews (contaminated) and the independent validity of situational tests for a team of three judges with no other knowledge of the candidates (uncontaminated).

Ratings were made on 12 predictive variables by each set of judges, the contaminated, and the uncontaminated. Criterion variables were obtained after a 4-year period. Some of the predictor variables and some criterion measures were obtained by use of situation tests which were really miniature lifelike work samples. Criterion measures included ratings on academic performance, diagnosing, researching, and supervising and objective test scores on clinical ability.

Correlations between predictors and criteria averaged .20 for situation tests alone, .30 on the information obtained before the situation tests were given, and .34 when the situation tests were included with the other information.

The author concludes that the use of situation tests in the project is not justified in view of their relatively low independent validity and their essentially nonexistent incremental validity.

27. Kraut, A. I. A hard look at management assessment centers and their future. *Personnel Journal,* 1972, **51**, 317-326.

Although assessment centers seem to provide a promising solution to the continuing problem of managerial selection, their acceptance is not without challenge. The author answers some of the recurring criticism leveled against assessment centers.

First, the author considers validity. He discusses three studies and states that it appears from the results of these and other studies that assessment programs can validly predict those individuals most likely to advance within an organization. A table is provided showing discrimination variance on assessors' judgements, and another work is quoted which shows reliability on the assessors' judgements to be in the range of .70 to .80.

The value of the assessment center program relative to existing promotion systems is considered. Tables provided show overlap on men selected by assessment center programs and existing programs but give a significant advantage to the assessment program in selecting when compared to an outside criterion such as relative salary.

Several other concerns are discussed including morality, initial impact of implementing assessment centers as a new system, relevancy of characteristics measured, and the impact on a man's career of a several day observation. The author concludes that the assessment center program need not impact unfavorably in any of these areas.

28. Kraut, A. I. New frontiers for assessment centers. *Personnel,* 1976, **53**(4), 30-38.

This is a general overview article. An assessment center is described: A technical definition of an assessment center is provided, and a list of programs that do not qualify as assessment centers is given.

The validity of assessment centers is discussed. The American Telephone and Telegraph 10-year-long study is mentioned in which 64% of the men predicted to reach middle management did so, compared to only 32% of those predicted not to reach middle management. The author notes a study of his own on several hundred sales representatives in which only 4% of the high rated assessees who reached first-level management were demoted compared with 20% of the low rated people. Mention is also made of a court case (Boray, Stokes, and Lant versus City of Omaha) in which the city of Omaha was upheld in its use of the method.

Minimum training requirements for assessors as recommended by a task force on Development of Assessment Center Standards (composed of professionals actively engaged in research on and application of assessment centers) are listed.

29. Kraut, A. I., & Scott, G. J. Validity of an operational management assessment program. *Journal of Applied Psychology,* 1972, **56**, 124-129.

This article reports on the validity of a 2½-day assessment center program run by International Business Machine Corporation. The assessment program includes group and individual exercises. An overall rating of management potential is generated and, along with a written narrative, goes to a manager two levels above the assessee and occasionally to his supervisor. The subjects were 1,086 employees in nonmanagement areas of manufacture, sales, or service of office equipment.

Criteria for validity were higher level promotions (of those who had already made first-level) and demotions from first-level management back down to nonmanagement positions. Of those who achieved first-level management and were assessed as having higher potential, 30% had made it higher. Of those who achieved first-level management and were assessed as having no higher potential, only 10% had made it higher. Demotions were reported for sales only. About 20% of those assessed as having no higher than first-line management potential were demoted, but only 9% of those assessed as having greater than first-level management were demoted.

30. MacKinnon, D. W. *A study to devise methods for assessing Air Force officers for command and staff leadership.* Project No. 7730, Contract #AF 18(600)-8. Institute of Personality Assessment and Research, University of California, Berkeley 1958.

This report is a summary of the Air Force assessment project of the 1950s. It includes a description and chronology of the major phases of the work: planning and development, living-in assessment, data treatment, and reporting phases. Analyses that followed completion of the original 631 variable intercorrelation matrix fell into, roughly, five categories: personality dynamics, data reduction, assessment methodology, criterion prediction, and specific researches. This report concludes with a summary of titles of 39 reports derived from this assessment project.

31. MacKinnon, D. W. The identification and development of creative personnel. *Personnel Administration*, 1968, 31(1), 8-17.

This article illustrates an application of assessment center programs to the study of a general personality variable. For several years, the Institute of Personality Assessment and Research at Berkeley has conducted research on the problem of identifying and developing creativity.

The author feels that the assessment center program permits the highly varied, multi-dimensional observational and testing procedures necessary to study creativity. Poets, novelists, essayists, engineer research scientists, inventors, mathematicians, and architects have been tested in the center.

The article presents some of the more salient characteristics of all the creative groups studied. Relationships of creativity to intelligence, originality, individualism, and intuition are among the topics covered.

32A. MacKinnon, D. W., Crutchfield, R. S., Barron, F., Block, J., Gough, H. G., & Harris, R. E. (This five-part series is filed under MacKinnon's name for reasons of clarity in presentation to the reader and appropriate credit to D. W. MacKinnon.) *An assessment study of Air Force officers, Part I: Design of the study and description of the variables.* WADC-TR-58-91(1), AD-151 040. Personnel Laboratory, Wright Air Development Center, Lackland AFB, TX: April 1958.

This is the first part of a five-part report covering an extensive psychological assessment of a group of Air Force captains selected from the population of captains within Air Training Command who were eligible for promotion. The 343 captains participating in the field-testing phase of the assessment were given 27 paper-and-pencil tests. From the field-testing sample, 100 officers were assigned in groups of 10 to a 3-day living-in phase of the assessment. During this period, they entered into some 50 assessment procedures, and a staff of psychologists rated each officer on a wide variety of personality variables considered relevant for effectiveness in senior command and staff assignments. As part of the evaluation of the assessment data, effectiveness measures were obtained as criteria from Officer Effectivenesss Reports, promotion board ratings, and superiors' ratings. A total of 648 variables were derived from the data collected. This report presents the overall design of the assessment study and defines each of 648 variables.

Norms are listed in an appendix. The report is considered a basic reference document for use with the other four parts of the technical report.

32B. *Part II: Description of the assessed sample.* Gough, H. G., & Krauss, I. WADC-TR-58-91(II), AD-208 700. September 1958.

This is the second part of a five-part report covering an extensive psychological assessment of a group of Air Force captains. It presents sociological and psychological descriptions of the sample of 343 captains participating in the field-testing phase of the assessment. The typical member may be characterized as being a Reserve officer who entered the service during World War II as an enlisted man and who received his commission through flying school. He is eligible for promotion to the grade of major. He is married and desires an Air Force career. His intelligence is above the mean for the general adult population but below the level defined by Terman and others as superior. His personal adjustment and psychiatric stability are judged to be excellent. In social technique, he is characterized by factors of leadership and dominance, capacity for status, and achievement motivation. Tests of social acuity and social insight place him in an average rank among groups of equivalent education or occupational status. His vocational interest profile is basically a "military officer" profile similar to the pattern observed in other studies of military officers.

32C. *Part III: Assessment correlates of criteria of officer effectiveness.* Barron, F., Block, J., MacKinnon, D. W., & Woodworth, D. G. WADC-TR-58-91(III), AD-210 218. December 1958.

This is the third part of a five-part report covering an extensive psychological assessment of a group of Air Force captains. Criterion data were gathered from Promotion Board Ratings, Officer Effectiveness Reports, superior officers' ratings, and from structured interviews with the officers. Overlap in criteria was reduced by factor analysis.

The assessment data being reported in this part were derived from 600 variables judged as potentially relevant to criterion prediction. The research finding of differential predictability for the several criteria was presumed by the authors to be an open research question concerned with organizational structure.

32D. *Part IV: Predictability of a composite criterion of officer effectiveness.* Gough, H. G. WADC-TR-58-91(IV), AD-210 219. December 1958.

This is the fourth volume of a five-part report of a project to develop methods for identifying Air Force officers with high potential for effective military leadership. Its purpose is to reduce data for 11 criteria to a practical composite criterion and to organize data concerning 631 test and assessment variables for prediction of the composite criterion. Evaluation of the criteria led to selection of three for combination in a Criterion Index. From correlations of the predictor variables with this criterion, 41 were identified that maintained significant relationships. By cluster analysis, these were reduced to homogeneous composite predictors that could be defined as psychological dimensions of officer effectiveness. By item analysis, lists of adjectives differentiating high-scoring from low-scoring officers on the Criterion Index were made and extensive personality questionnaire data were reduced to two brief scales keyed to predict the Criterion Index. The results identify both the group-testing instruments and individual assessment devices that hold promise for identification, early in an officer's career, of those capable of becoming outstanding commanders.

32E. *Part V: Summary and applications.* MacKinnon, D. W. WADC-TR-58-91(V), AD-210 220. December 1958.

This is the final volume of a five-part report of a project to develop methods for identifying Air Force officers with high potential for effective military leadership. It summarizes significant relationships between predictor and criterion variables. Inferences from these relationships provide a comparative evaluation of the criteria of officer effectiveness and lead to selection from the experimental devices of instruments proposed for inclusion in a program of officer assessment. Twenty additional published reports based on the study are listed at the end of this fifth and final report.

33. Martin, A. H. Examination of applicants for commissioned rank. Appendix from *German Psychological Warfare* by L. Farago & L. F. Gitler. New York: Commission for National Morale, 1942.

The examination of German officer applicants was conducted from a synthetic rather than an analytical approach. It was considered essential to select those who possessed highly developed character traits of a kind not easily measured by paper-and-pencil tests or interviews.

The psychological examination of applicants for commission required 2 days with an intervening free day. The series of tests included pencil-and-paper intelligence tests and similar tests of technical aptitudes. Poem paraphrasing and selection of the most favored reproductions of various pictures of the "Medical Print" type were included at this sitting. There were some performance tests of intelligence combined with technical aptitude and some manual dexterity tests. There was a battery of military work sample tests. There were "action" tests of ingenuity and persistence.

The Germans did a follow-up of each candidate. After 3, 6, and 12 months training, the training-staff personnel recorded their opinions about each individual officer applicant who had passed through their hands. Follow-up opinions were found to differ from earlier opinions in only 2% of the cases. It was therefore concluded that preliminary examination was 98% effective in selecting suitable candidates for officer training.

34. McConnell, J. H. The assessment center in the smaller company. *Personnel*, 1969, **46**(2), 40-46.

This article describes the development of a 1-day assessment center program for use by a small company. The expense and complexity of a 3- to 5-day evaluation appear prohibitive for all but the larger corporations.

The assessees are evaluated on 16 traits (including intellectual ability, oral and written communication, leadership, creativeness, organization, and initiative) by six in-house assessors who have completed special training. The assessees include all newly hired college graduates, volunteers below the management level, and recommended non-management employees. One month after the session, a counseling interview is held with each assessee. The end product is a final report containing a written evaluation, a description of the interview, and a set of recommendations. This final report goes to the personnel department and immediate supervisors.

An evaluation is to be completed after several years have passed.

35. McConnell, J. H. The assessment center: A flexible program for supervisors. *Personnel*, 1971, **48**(5), 35-40.

Typically, assessment centers require several days of assessee's time, a great deal of professional skill to develop and administer the program, and training time for the managers who will act as assessors. The related costs are often prohibitive for smaller companies.

The author describes a standardized 1-day assessment center program developed by the American Management Association's Multimedia Department which can be conducted by an organization's own personnel and which is flexible enough for use by organizations of all sizes.

The traits assessed and the evaluative components are given. Assessor training requiring about 24 hours of time is described.

The program has been tested, and the author states that comparison of program evaluations with on-the-job evaluations showed the program was a significant means of judging supervisory performance. Assessments were made by two groups of assessors for the same assessees at 4- to 8-week intervals. The author states that the findings confirmed the reliability of the program evaluations.

36. McConnell, J. H., & Parker, T, C. An assessment center program for multi-organizational use. *Training and Development Journal*, 1972, 26(3), 6-14.

This article describes the development of a 1-day assessment center package intended for use in a variety of organizations. It was designed for the American Management Association and is meant to identify first-level supervisory management and to provide developmental reports on management abilities.

The package was tested on a multibranch New York City bank, a defense electronics manufacturer, a paper manufacturer, and an auto manufacturer.

A predictor of overall management ability correlated .57 with "actual job performance ratings obtained from the organization." Also, though numbers were small, there was indication that the AMA program did not operate differently for minority or female participants than it did for males and majority members.

37. Mitchel, J. O. Assessment center validity: A longitudinal study. *Journal of Applied Psychology*, 1975, 60, 573-579.

The major purpose of the study was to examine predictive validity of an assessment center at 1-, 3-, and 5-year intervals after assessment. A secondary purpose was to compare the predictability of the overall assessor rating with that of multiple correlations of a battery of predictors.

The subjects were managers attending The Standard Oil Company's assessment center program: 95 men in the 1-, 3-, and 5-year sample, 84 men in the 1- and 3-year sample; and 75 in the 1-year only sample. Predictors are a potential rating and several personality variables such as oral communication, impact, originality, mental ability, and organization with ratings done by peers and by assessors. Criterion is salary growth.

Peer ratings of potential correlated .25, .30, and .36 with the criterion for the men in the 1-, 3-, and 5-year sample. Assessor ratings of potential were similar: .22, .28, and .32. For the men in the 1- and 3-year sample, correlations of predicted potential with criterion were .09 and .28 for peer ratings and .10 and .22 for assessor ratings. Similar growth occurred for the personality variables individually. Impact was the highest correlating individual variable on the 1-, 3-, and 5-year group, this was somewhat better than the overall potential rating for this group.

38. Olmstead, J. A., Cleary, F. K., Lackey, L. A., & Salter, J. A. *Development of leadership in assessment simulations.* Technical Paper 257, AD-772 990. U.S. Army Research Institute for the Behavioral and Social Sciences, October 1974.

This article reports on the development of assessment exercises for use in U.S. Army leadership assessment centers. Assessment procedures were developed for the assessment of three levels of personnel. Materials and procedures for training staff personnel were also developed.

It was concluded that organizational exercises uniquely contribute to the assessment center program.

39. OSS Assessment Staff. *Assessment of men.* New York: Rinehart, 1948.

This book is the account of the assessment of Office of Strategic Services male and female recruits by a staff of psychologists and psychiatrists. This was the first assessment center in the United States and was patterned on the British War Officer Selection Board centers and their German counterparts. This volume illustrates the considerations for setting up a large assessment center under emergency wartime conditions at a time when such centers were not the sort of "Standardized" affairs which they frequently are today.

It is concluded that since no statistical evaluations of the performances of the assessed exist from the various theaters of war, there is no assurance that the findings of the assessment staffs justified the costs involved. However, the authors believe that the psychologists and psychiatrists of the assessment staff were virtually unanimous in agreeing that the OSS program of examination and diagnosis was better than any with which they had previously been familiar.

40. Reeve, E. G. *Validation of selection boards*. London: Academic Press, 1971.

This book contains an in-depth statistical treatment of the British War Officer Selection Boards which were set up in 1942. The purpose of these boards was the use of a 4-day assessment center program to find personnel to meet the greatly expanded needs of the British Armed Services for officers during the then-extant world conflict. It is of interest primarily for the insights which it offers into the problems of validity encountered in the very early history of assessment centers such as reliability of predictor and criterion ratings and restriction of variance when the predictor is used as an operational screen.

41. Sakoda, J. M. Factor analyses of OSS situational-tests. *Journal of Abnormal and Social Psychology*. 1952, **47**, 843-852.

The Office of Strategic Services conducted one of the earliest assessment centers. Among other data, the assessors gathered ratings on ten major traits in an average of six different situations per trait. The author factor analyzed tables of correlations of the four traits which were rated in the greatest number of different situations. These traits were effective intelligence, social relations, energy and initiative, and leadership.

The factor analysis revealed at least two different general kinds of situations which affect the rating of traits. These are verbal situations (debate, discussion, written sketches, vocabulary) and active situations (jointly carry a log over a brook, lead men through a mine field, build a wood structure).

Further, a factor analysis of the ten traits showed most of the common factor variance can be accounted for by three general traits—intelligence, social adjustment, and physical energy.

42. Slevin, D. P. The assessment center: Breakthrough in management appraisal and development. *Personnel Journal*, 1972, **51**, 255-261.

This is a general information article discussing the value of assessment centers in achieving a broad, in-depth evaluation over several dimensions during a period extending over more than 1 day.

A typical center is described as a process through which a small number of assessees are intensively observed by a number of trained assessors. A 5-day example schedule is provided, and typical assessment dimensions are listed. The end product is described as a report for management, as well as optional counseling for the assessee.

The author estimates costs in the area of $500 per assessee and considers this cost to be a bargain since it is cheap compared with top-level appraisals by outside consultants who usually do not include assessee counseling. The author also states that as a technique of managerial selection, the assessment center technique is as effective or moreso than any other currently in use.

43. Stern, G. G., Stein, M. I., & Bloom, B. S. *Methods in personality assessment*. Glencoe, IL: Free Press, 1956.

The introduction contains a history of assessment centers and their methodological development from their origins to the point represented by this volume. The purpose of the book is to clarify four major methodologies of assessment: the analytical, empirical, synthetic, and configurational approaches.

Of these approaches, the most fundamental and the most basic to the establishment of an assessment center program is the analytic design. It involves several stages. It begins with a thorough situational analysis based upon the observations of the assessment staff aided by the faculty, or significant others, from which the functional roles are clarified. A criterion is derived from this material by translating the functional roles into descriptive personality models of effective performers. This is followed by a selection of tests on the basis of which the personalities of the individuals to be assessed are diagnosed. Finally, assessment staff conferences are held in which data from the analyses of environment and individuals are integrated and predictions made.

44. Taft, R. Multiple methods of personality assessment. *Psychological Bulletin*, 1959, **56**, 333-352.

Personality assessment center procedures are analyzed with respect to their purpose and prediction strategy. The problem of simultaneous validation of tests and their use as selection devices or as personality measures for research are discussed in terms of concurrent and construct validity. It is pointed out that an assessment center program whose primary purpose is selection can contribute to personality research through construct validation. Three prediction strategies are detailed, naive empirical (inclusion of a test is determined by its predictive validity), global (the assessor relies on intuition), and analytic (the traits measured must be valid for the criterion and the assessment center techniques must validly measure these traits).

The author examines the roles of objectivity (statistical) and subjectivity (clinical) in the final predictive phase of an assessment program and concludes that techniques useful to an assessment center will include a mixture of both, but that, in general, objective methods are to be preferred. A review of the value of multiple tests on clinical evaluation gives several studies supporting the position that more than two or three pieces of data are likely to be of little value to a clinician while several studies indicate increased validity with increased data. The author suspends judgement. On the issue of multiple assessors, the author concludes that at the observational level several observers would be more accurate than one, at the interview level quite possibly one person may be as effective as several and at the interpretation stage pooled predictions are more accurate than individual predictions.

45. Thomson, H. A. Comparison of predictor and criterion judgments of managerial performance using the multitrait-multimethod approach. *Journal of Applied Psychology*, 1970, **54**, 496-502.

The multitrait-multimethod matrix technique was used to examine the predictive validity of ratings of management potential derived from a 3-day industrial assessment center. The subjects were 71 professional, technical, and lower level management personnel, and the assessors were psychologists and managers. Criterion ratings consisted of ratings by supervisors on the same 13 dimensions used in the assessment center.

The median reliability of the supervisors' ratings was .52 compared with median reliabilities of .85 and .89 for the psychologists' and managers' ratings. The psychologists' and managers' ratings had median correlations of .42 and .38, respectively, with the supervisors' ratings. The psychologists' ratings correlated .85 with the managers' ratings. The use of the multitrait-multimethod approach permitted an analysis of sources of invalidity in the criterion ratings. The supervisors utilized a more restricted range of scale values than did the psychologists and managers in the assessment center. Also, the supervisors failed to differentiate the various dimensions.

46. Uhlaner, J. E., Zeidner, J., & Dusek, E. R. *Research themes and technological base program in behavioral and social sciences for the US Army.* Department of the Army, US Army Research Institute for the Behavioral and Social Sciences, 1975.

This report describes the Technological Base program of the US Army Research Institute for the Behavioral and Social Sciences, including descriptions of Research Themes supporting this program. (The Technological Base program is that part of the total research and development program dealing with scientific theory, principles, knowledge, or method intended to advance the state-of-the-art in military sciences and their subsequent application. Research Themes are defined as suggested areas for basic research required for the resolution of critical Army problems where progress has been inhibited by a lack of understanding of basic fundamentals or a scarcity of basic data.)

This descriptive report is organized by work-unit area. The sections on Performance-based Leadership Development Processes and Leadership Training Program Evaluation should be of interest to those engaged in assessment research. Among the projected outputs of the performance-based leadership development work-unit are guidelines for creating group situational exercises for assessment and development of leadership skills and development of a prototype instructional procedure to train evaluators to assess the situational exercises. The leadership training work-unit grew out of the Army research on assessment centers. The officers who participated in the assessment center felt they had received a great deal of helpful training. An output of this work-unit is to be an integrated system of leadership training involving assessment, counseling, and career motivation.

47. Veaudry, W. F., & Campbell, J. C. Assessment centers—A new look at leadership evaluation. *Army Magazine*, March 1974.

Within the Department of the Army, continued inflation of enlisted and officer evaluation reports hampers assessment of individual abilities and potential. An assessment center program is being investigated as a means of providing unbiased (and uninflated) evaluations, as well as providing individual career development.

After preliminary tests of the technique on Battalion Commanders and Brigadier General designees, a pilot project was set up. Individual and group situational exercises, interviews, and standard paper-and-pencil tests were included in a 3-day assessment. Junior officers, officer candidates, sergeants, and ROTC students have been tested.

While conclusions on the effect of the assessment center on selection await a follow-up study, it does appear that participation in the assessment center program provides excellent performance-oriented leadership training.

48. Wollowick, H. B., & McNamara, W. J. Relationship of the components of an assessment center to management success. *Journal of Applied Psychology*, 1969, 53, 348-352.

The purpose of this study was to determine the validity of an assessment center approach in predicting management potential and to determine the relative value of the components of the program.

The subjects were 94 men from lower and middle management positions, of a large electronics firm who undertook the 2-day program of an assessment center. Components of the assessment program were written tests (six), situational exercises (three group and three individual), and characteristics (12, including self-confidence, written communication, aggressiveness, and risk taking). An overall rating was also assigned to each participant by the staff. A criterion variable score based on managerial responsibility was created with 12 steps. Each participant was measured on the criterion at the time of assessment and again after 3 years.

The overall rating correlated at .37 with the change in the position-level criterion (significant at .01 level). Tests, exercises, and characteristics correlated higher (.45, .39, and .41, respectively), pairwise combinations are higher (.54 for tests and exercises, .52 for characteristics and exercises, and .55 for characteristics and tests), and all three together gave a correlation of .62 with the criterion.

Several conclusions are drawn. All three measures contribute materially to the validity. Inclusion of the elements unique to the assessment center (situational exercises and characteristics) nearly doubles the criterion variance accounted for by tests alone. Finally, the statistical combination of tests, exercises, and characteristics giving a multiple correlation of .62 is a much better predictor than the assessment staffers' overall rating which gives only .37.

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