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SUMMARY REPORT OF OCS VALIDATION STUDIES.
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PERSONNEL RESEARCH SECTION
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SUMMARY REPORT OF OCS VALIDATION STUDIES

BACKGROUND

Until 1946, selection of candidates for attendance at Officer Candidate Schools (OCS) was determined on the basis of AGCT and Officer Candidate Test (OCT) scores, together with an evaluation of other factors (recommendations, Army record, civilian education and experience, etc.) made by an Army Interview Board. The specific procedures for selection were established somewhat independently by the various forces, arms, and services.

Early investigations of the selection procedures used for OCS indicated that the problem under consideration was highly complex. Not only was it necessary to predict academic success in OCS, but also to determine leadership ability. In addition to these inherent difficulties, the nature of operating conditions also contributed to the complexity of the problem. Small-sized graduating classes and changes in the Army's needs for officers and schools affected the size and nature of the available samples. With all of these factors operating it was not unexpected that the development of useful prediction instruments should turn out to be a slow and laborious process, nor that once developed, the instruments might prove difficult to validate. The history of the development of the instruments used in the present validation study illustrates these points further.

One investigation of selection procedures for OCS (1) found the AGCT and the OCT to be valid predictors of scholastic achievement at OCS. Yet the other variables typically included in Army records were found to have little relationship with the leadership ratings obtained at the Schools. This suggested that the AGCT and the OCT might be followed up further. The validity of the OCS Selection Board findings at the time of this early study was not clear. Under the Officer Selection-Retention Program, which investigated procedures for the selection of AUS officers for retention in the peacetime (Regular) Army, no relationship was found between the findings of similar Army boards and success as an officer. A report on this program (2) concluded that if such boards were to be used in the selection process, they would necessarily have to be standardized. The need for selection instruments predictive of leadership was emphasized as requiring further investigation.

In the course of the Officer Selection Retention program, several instruments were developed or adapted for the purpose of selecting officers for retention. Among them were:

1. An Officer Classification Test (OCT 14a) PRT 400
2. A Biographical Information Blank (BIB, Form D) PRT 410
3. An Officer Evaluation Report (OER) PRT 462, "A new improved efficiency rating device" combining the best features of old instruments and some new ones
4. Standard interview procedures (INT) PRTs 403, 413, 458

These instruments were found to be reliable, and valid for the purposes for which they were designed. A combined point index based upon OER, BIB, and INT differentiated officers on the basis of efficiency (as determined by an extensive rating procedure) in a manner far superior to both Army board methods, and to averages of previous efficiency ratings. The intercorrelations of AGCT, OCT, and academic success at OCS were established, and the possibility of effecting a cutting score on the OCT was explored. The report on the program concluded that the selection program was capable of the scientific selection of officers in a manner which would accomplish "tremendous savings, if rigorously applied under the conditions which led to its standardization."(2)

Acting upon a request from the officers responsible for OCS and West Point selection at the Signal Corps School at Fort Monmouth, N.J., another program (Officer Prediction - Signal C) was established to adapt these retention instruments for the purpose of selecting enlisted men for attendance at OCS. Revision and addition led to the inclusion of these instruments as predictors of leadership:

1. The Interview Blank (OCS-1) PRT 529.
2. The BIB (OCS-1) PRT 531.
3. The Military Report (OCS-1) PRT 534, an evaluation of the performance of the applicant as an enlisted man, which, in its final form as determined in the study, included only reports by the immediate superior NCO, confirmed by the immediately superior Commissioned O.
4. Recommendation Blank (OCS-1) PRT 532, an instrument designed to gather information about the applicant from civilian "friends of the family."

Together with the AGCT and the OCT as predictors of academic achievement, these instruments were evaluated against a complex leadership criterion (based on ratings by fellow students and tactical officers) on a population consisting of two small OCS classes at Fort Monmouth. (For class '51, N = 51 to 81; for class '52, N = 30 to 42.) The four instruments in combination had a back-validity of .71 for class '51, and a cross-validity of .72 for class '52.1/ The two academic predictors were again shown to have high validity; it was carefully pointed out, however, that the instruments developed for the prediction of leadership had practically no relationship to those designed for prediction of academic success.

The evident success of this small scale investigation led to the recommendation that it be extended on an Army-wide basis, with the adoption of criteria emphasizing personal leadership rather than success criterion such as

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1/ There appears to be an error in the report (3). A calculation of the cross-validity gives a correlation of .685. It is doubtful that this coefficient can be determined exactly because the number of cases for each correlation (within the four by four matrix) was not the same. This implies selection of some kind.

graduation. It was observed that the latter criterion is too heavily weighted with the scholarship factor to be useful in the development of instruments designed to predict leadership qualifications.

This recommendation was realized in a program (Officer Selection - EM) designed to establish procedures for the selection of enlisted men for officer training. The instruments developed in the earlier program (Officer Prediction - Sig C) were further revised and introduced into this new program as:

1. Officer Candidate Applicant Interview (OCI-1 and OCI-2) PRT 574 and PRT 575
2. BIB (OCB) PRT 573
3. Officer Candidate Applicant Evaluation Report (OCE-1) PRT 572
4. Recommendation Blank (OCR-1, OCR-2, and OCR-3) PRT 576, PRT 577, and PRT 578

These four instruments were field-tested in the spring of 1946. In a population of 7845 EM, 2924 (39%) met the initial screening requirements for OCS, with an AGCT score of 110 or more. This group provided evaluation samples for the validation of the above instruments against leadership scores, derived from ratings by associates and officers. Three of the instruments OCB, OCE-1, and OCI-1 or 2 had a composite back-validity of .47, while cross-validation of this battery on two samples yielded coefficients of .37 and .51 (N's = 161, 195, and 163). In view of the results to be presented later, it should be emphasized that these relatively high validities were obtained on quasi-applicant samples of EM who met the requirements of only the first selection screen; i.e., these men had not applied for OCS, but were qualified to do so.

On the basis of this field study, procedural recommendations were made for the selection of applicants for the first Branch Immaterial OCS Class in the fall of 1946.

It was recommended, of course, that a follow-up validation of these instruments be made against criteria of performance at OCS and later performance after graduation. Some consideration was given to this problem in the course of a subsequent program, during which both the BIB and the Interview procedure were revised, and some preliminary field work was undertaken. This latter program was closed out, however, upon completion of its primary purpose, which was the development of administrative forms and procedures to implement War Department directives governing the procurement of reserve officers from several channels.

Meanwhile, a new program had been established to consider problems of WAC officer selection. With the recommendation that it be broadened to cover problems of officer selection in general, the ultimate core of (OCS selection) was established.

PROCEDURES AND RESULTS

As ultimately conducted, the OCS selection program was concerned with two areas of study: (I) the adaptation of instruments for the selection of WAC personnel for OCS; (II) the development and validation of selection procedures for OCS.

PREPARATION OF INSTRUMENTS FOR SELECTION OF WAC PERSONNEL FOR OCS

With the establishment of the WAC as a part of the Regular Army, it was necessary to provide for the securing of personnel for commissioning through the establishment of a WAC OCS. The Personnel Research Section, Personnel Research and Procedures Branch, The Adjutant General's Office, Department of the Army, was directed to develop screening instruments paralleling and, where possible, duplicating those already devised for the selection of male personnel. Since no source of preliminary validation existed at the time, it was necessary to limit the development of instruments to adaptation of those already constructed and validated for other purposes.

It was decided to scrutinize for adaptation, with minimum changes, instruments which had been developed for the following purposes:

1. Classification of WAC enlisted personnel
2. Integration of AUS Officers (Male) into RA
3. Integration of WAC Officers into RA
4. Selection of enlisted men for assignment to OCS

Having no existing criteria for the validation of new procedures, it was feasible to plan only for the establishment of rosters on the basis of such instruments as could be devised, with selection from the top to fill the initial quotas. Criterion data could be collected later from early OCS classes.

Three projects were established to meet the needs of this initial interim program:

1. Adaptation of Instruments to select Candidates for WAC OCS
2. Development of Criteria to measure success at WAC OCS
3. Validation of WAC OCS Selection Instruments

The principal accomplishments under this portion of the program are summarized in Table 1, in which the instruments developed are presented with reference to the parent instruments from which derived, and the revisions necessitated by the change in purpose.

With the revised instruments introduced into the field for selection purposes, it soon became evident that the rate at which data could be collected from the School would be inadequate to warrant any early conclusions regarding

Table 1. Instruments developed under PJ 4118-01 for the selection of WAC personnel for attendance at OCS.

Old Instrument	New Instrument	Revisions
WAC Officer BIB (PRT 752) (developed in PR 4092, Integration of WAC personnel into RA)	WAC OCS BIB (PRT 890)	Items applicable only to O's or military personnel eliminated; phrases appropriate to enlisted women and civilians substituted.
WAC Officer BIB manual (PRT 763)	WAC OCS BIB manual (PRT 891)	Request for ASN omitted.
WAC BIB answer sheet (PRT 751)	----------	No change.
OCE-2,B, male OCS applicant evaluation report (PRT 652)	WAC OCS Evaluation Report (PRT 893)	Minor editorial changes. (Not intended for use with civilian applicants.)
OCE-2,R, Officer Candidate applicant evaluation report (answer sheet) (PRT 649)	WAC Officer Candidate Applicant Evaluation Report (answer sheet) (PRT 892)	Title change only.
OCI-4,B (PRT 737)	WAC OCS Conduct of the Interview (PRT 895)	Situations not applicable to females were deleted; items requiring military experience replaced by items applicable to enlisted women and civilians.
OCI-3,R (answer sheet) (PRT 650)	WAC Officer Candidate applicant interview (PRT 894)	Title change only.
Mental Alertness Test-2 (MAT-2, PRT 55)	WAC Officer Candidate Test, (PRT 854)	Retitled. Used for Experimental purposes only. (E.g., not a part of the selection battery)
MAT-2, manual (PRT 56)	WAC OCT manual (PRT 856)	A new manual, incorporating the directions of PRT 56.
Officer Education Qualification Test (PRT 988)	----------	Adopted as a screen for non-college-trained applicants.
----------	Directions for Administering and scoring OEQT (WAC OCS)	----------

the validity of either the selection procedures or the WAC OCS grading systems. As of the date of the final report (5), data on the proposed list of 25 selection and school performance variables were available for only 37 graduates of the first class. For the three selection variables (BIB, OER, and CCI) in addition to age, education, and prior service, data were at that time available for 205 applicants, of whom only 129 had been selected for training.

The latter two projects of the program were accordingly suspended until such time as usable quantities of data would be available, and the Personnel Research Section assumed the role of consultant to the WAC OCS in matters pertaining to selection.

DEVELOPMENT AND VALIDATION OF SELECTION PROCEDURES FOR MALE ARMY OFFICER CANDIDATE SCHOOLS

In the course of the development of the selection instruments, several validation studies were conducted against criteria established for that immediate purpose. Characteristically, these criteria were in the form of rating scores derived from appraisals by associates and superiors, both enlisted and commissioned. In some cases these ratings were performed within a school situation; the most extensive study, however, was undertaken on an Army-wide basis, with no reference to any actual school or post-graduation performance. In recognition of the importance to the Army of the OCS program, and the correlative significance of valid instruments for the prediction of school achievement and success in later performance as an Officer, several projects were assigned for the purpose of investigating the adequacy of the selection variables in terms of ultimate criteria. As finally conducted, these included:

1. Validation of Selection Instruments for Male OCS against School Criteria. Phase I.
2. Validation of Male OCS Selection Instruments. Phase II. Analysis of Criterion Variables.
3. Development of Procedures for Classification of Male OCS Graduates to Arm or Service.
4. Validation of Male OCS Selection Instruments against performance in associate basic course. (This project was cancelled in view of difficulties inherent in the collection of criterion data.)
5. Validation of Male OCS Selection and School Procedures against later performance as an Officer.
6. Item Analysis and Validation of the BIB, OCB-3, against a composite criterion of associate and Platoon Leader ratings. (This project was added in view of the very low validity of the BIB as revealed in Phase I - noted above.)

The instruments evaluated in these surveys represented, for the most part, minor revisions of those which have already been discussed in the Introduction. Leadership predictors included:

1. BIB (OCB-3) PRT 735
2. Interview Procedure (OCI-4) PRT 737
3. Evaluation Report (OCE-2) PRT 652

In addition, the AGCT scores, and results from two forms of the Officer Candidate Test, OCT-1 and OCT-2, all intended as predictors of scholarship, or of academic success in OCS, were restudied. Samples for the studies were drawn from the last two OCS classes at Fort Benning, and the first classes at the newly established Branch Immaterial school at Fort Riley.

The initial step (Phase I) was to correlate the several predictor variables with existing school criteria of graduation and attrition. The results can be summarized as (1) lack of predictive power and (2) considerable variation of correlational results among classes. Two problems immediately became evident:

1. Many cases of attrition could be attributed to administrative irregularities, which the instruments were never meant to predict;
2. Due in part, perhaps to the change in schools and the establishment of a new training center, there was considerable instability in administrative procedures among classes.

In consideration of this variability and the uncertainty of the measures used in the Schools for the determination of graduation, it was deemed advisable to study the within-school criterion measures in themselves, to ascertain the extent to which they could be predicted. Accordingly, an extensive study of the intercorrelations of the criterion and selector variables was made (Phase II). The measures studied included:

1. Those entering into computation of final grades
   a. Platoon leader evaluations
   b. Physical efficiency tests
   c. Academic grade
2. Supplemental information variables, not used by the schools in determining graduation,
   a. Evaluations by fellow candidates
   b. Delinquencies (three levels of severity)
   c. Military stakes (a tactical performance battery which in later classes entered into determination of final standing)

Closest agreement was found between fellow candidate evaluations and Platoon Leader ratings, a result due in part, perhaps, to the officers' knowledge of the associates' rankings. Both sets of ratings predicted attrition after the first month, with the fellow-candidates performing a somewhat finer discrimination.

None of the school measures showed any appreciable agreement with scores on the selection instruments.[2/] Only the previously established intercorrelations of AGCT, OCT, and academic grades were confirmed. While the lack of agreement between the instruments and the school measures can be attributed in part at least to the variability in the school procedures, this factor does not serve to remove the instruments from suspicion. In view of the methods by which they were developed, standardized, and validated, the lack of correlation between elements of the selection battery and the associates' ratings, for instance, raises questions about their applicability.

The attempt to evaluate the selection instruments and the school measures with reference to later success as an officer was no more satisfactory. Using as a criterion a single efficiency report score (derived from DA AGO Form 67-1 and weighted according to length of period covered and number of reports available), little relationship with either the interim selection techniques or the school measures was found. Again, the correlations with rating groups (associates and Platoon Leaders) contributed the only non-zero results, but none of these exceeded .28. Interpretation of the results as a whole was conditioned by the relatively brief periods of service represented by the criterion measures, and the nature of the duties undertaken by recent OCS graduates. As a measure of ultimate performance as an officer, efficiency reports soon after graduation may in themselves be inadequate.

It has already been suggested that observed inconsistencies in school procedures cannot be blamed entirely for the lack of agreement between these procedures and the interim instruments developed as predictors of officer ability. Since the instruments were developed and initially validated with reference to ratings obtained from associates and supervisors, if adequately designed they should have shown high correlations with the supposedly similar rating accomplished in the school situations. This was not found to be the case.

2/ After work on this program was completed, it was found that the policy at Ft Riley "forced" a correlation between ratings and delinquencies (see the Code of Conduct, p. 9, par. 1, Ft. Riley AOCS). While the obtained correlations are low (.15-.20), they are consistent and compare favorably with other inter-measure correlations found in this study. It is impossible to evaluate the full effect of this policy on the objectives of this study; there is little doubt, however, that this implied overweighting of delinquencies in the within-school determinations of a candidate's standing seriously affected the overall results.

Particular attention was directed to the BIB, whose low demonstrated validity may have been occasioned by the nature of the population used in its development and initial keying. A simulated applicant population composed of enlisted men with AGCT scores of 110 or more, the initial prerequisite for consideration for attendance at OCS. A new project was therefore undertaken to validate and item analyze the instrument against a composite criterion of associates' and Platoon Leaders' ratings, and against subsequent Officer Efficiency Reports (67-1).

In all, four separate keys were developed: one from item analysis against the rating criterion, one against the efficiency report scores, one determined through validity generalization procedures, and a fourth to serve as a suppressor. While some of the between-key correlations were reasonably high, their predictive validities (determined upon a cross-validation sample of approximately 120 cases) were universally very low. The two item analysis keys, in combination with the suppressor, had essentially the same correlation with the efficiency report scores (.19 to .20); neither showed any appreciable correlation with the fellow candidate and Platoon Leader evaluations.

A second phase of this project was established for the purpose of developing a new Biographical Information Blank, utilizing the information gained from this program and from other sources as well. The finished instruments (OCB-4 and OCB-5), were constructed on the basis of validity generalization principles, incorporating items from several instruments found to be successful for the selection of officers through other channels (e.g., ROTC, West Point), as well as the most valid items from the OCB-3.

One remaining project, concerned specifically with the assignment of OCS graduates, arose from complaints from the combat arms commands that they were receiving a disproportionate share of low-potential graduates. While post-graduate classification continued on the basis of academic standings, as directed by AGF, a trial-run was made of a different distribution system designed by Personnel Research Section personnel. This plan called for the differential weighting of class-standing elements and the consideration of aptitudes, preferences, and background in the computation of composite scores for each arm or service.

It was found that the Personnel Research Section plan would have resulted in more favorable classification than the AGF plan, even when the latter was modified by OCS. While Personnel Research Section agreed to the adoption of its plan for future classification purposes, it withheld formal concurrence pending further study and validation of the assignment procedures.

GENERAL CONCLUSIONS

It is evident from the results themselves that both the predictors and the criteria are in need of improvement. The generally unsatisfactory results obtained in the validation studies suggest the need for a fairly thorough consideration of the factors which may have contributed to the low obtained validities of the selection instruments. An increase in agreement between the

instruments and the criteria is necessarily contingent upon the reduction of errors which have arisen in several areas.

WITHIN-SCHOOL PROBLEMS

Determination of the predictability of official measures of performance at OCS is predicated upon the minimization of administrative irregularities and the improvement and stabilization of evaluation procedures. In addition to variability from class to class in the grading and administrative systems (which may have been due largely to the problems of reestablishing the OCS at a new installation), much of the attrition occurring in the early part of the course resulted primarily from administrative irregularities rather than from poor performance at OCS. The selection techniques are not designed to predict inadequate screening, or the misapplication of the selection procedures.

INSTRUMENT-DEVELOPMENT PROBLEMS

There is reason to question the applicability to the OCS selection problem of predictors developed upon experimental pre-OCS or quasi-applicant populations; the differences between the experimental and the ultimate graduate populations may be significant. Certainly different motivational conditions prevail in making criterion ratings under the two different circumstances; and there is little doubt that the uniform testing conditions observed in experimental field trials are not a part of the real selection situation. The success obtained in the construction of the ROTC BIB under operating conditions, with its sustained high validity upon cross-validation in civilian and military schools and at West Point, lends support to the adoption of development methods which utilize ultimate populations.

CRITERION INADEQUACIES

In addition to the instability of certain of the school criteria, some measure of doubt exists as to the adequacy of many of the predicted measures. It was found in this and in earlier studies that little agreement exists between predictors of leadership on the one hand, and predictors of scholarship on the other. Together with the administrative circumstances which contributed heavily to the early attrition at OCS, the emphasis placed upon academic performance in determining graduation renders a criterion of graduation-attrition inadequate for the evaluation of leadership predictors.(3) While they have not been used by the schools in determining graduation, the associates' ratings have consistently shown the highest correlations with the predictors and the later criteria, and the greatest correlational consistency between classes. While correlations between measures which are both derived from ratings must necessarily be viewed with caution, the associates' ratings nevertheless show the most promise as a consistent school-performance measure.

With reference to the use of Form 67-1, or other officer efficiency criteria, it has been observed that many officers are still in training status for several months after graduation from OCS. Early efficiency reports may

not be appropriate measures of their ultimate performance in non-trainee, command and staff responsibilities. The significance of this factor as an influence in post-graduation efficiency reporting remains to be evaluated.

CLARIFICATION OF PURPOSE

Operationally, the instruments were developed in the pre-OCS situation, described previously, to be predictors of leadership (as defined by associates' and supervisors' ratings) with the tacit assumption that this would serve adequately to select those most likely to succeed in OCS and in later performance as officers. However, failure to predict performance would not, in itself, render the instruments valueless, provided other assumptions can be justified. Prediction of success is one problem; selection for attendance at Officer school is another. It is at least possible that the selection instruments were serviceable in rejecting enough applicants who were not likely to succeed, and in not rejecting too many who were very likely to succeed. The absence of correlation among the predictors, the school measures, and later performance does not necessarily mean that the procedures fail to retain the best potential leaders, or that the selection has been inadequate. The ultimate population is a highly selected one, and the low order of the obtained correlations may be the result of restriction of range.

Obviously, there is no empirical evidence to support the argument, and no amount of rationalization should be permitted to preclude attempts at improvement. However, the investigation of relationships within a limited and pre-selected population alone may not be the best means of evaluating the efficiency of selection instruments.

Whatever the justifications for the lack of relationships observed in this program, the studies illustrate the importance of validating selection instruments under operating, rather than experimental, conditions. It is further evident that both the selection instruments and the measures of school performance are in need of extensive revision.

PERSONNEL

Program Coordinator: Lindsey R. Harmon, Hubert Brogden
Statistical Adviser: Claire T. Machlin
Preparation of Report: Marshall Heyman

PREPARATION OF REPORT: 1 August 1951

REFERENCES

Reports of the Personnel Research Section, Personnel Research and Procedures Branch, The Adjutant General's Office, Department of the Army.

1. PRS Report 651. Evaluation of prediction of success in Officer Candidate Schools. 10 October 1945.

2. PRS Report 704. Validation of a program for selection of officers for retention in the peacetime Army. 9 July 1945.

3. PRS Report 711. Prediction of leadership qualifications of officer candidates in the Signal Corps. 1 March 1946.

4. PRS Report 752. Procedures for selection of enlisted men for officer training. 9 February 1948.

5. PRS Report 812. Validity of WAC OCS selection instruments. 23 November 1949.

6. PRS Report 819. Validity of male OCS selection instruments. I. Validation against graduation. 24 January 1950. (Not for distribution.)

APPENDIX A

REFERENCE LIST OF PROGRAMS

PR or PJ No.	TITLE
4061	Officer Selection for Retention in the Post-War Army
4071-b	Selection Procedures for Enlisted Men for Officer Training in the Signal Corps
4076	Selection of Enlisted Men for Officer Training
4103	Development and Adoption of Materials to Supplement a War Department Circular
3405 (4118)	Increasing Effectiveness of Procedures for Selection of Personnel for OCS
3405 (4118-01)	Adaptation of Instruments to Select Candidates for WAC OCS
-02	Development of Criteria to Measure Success at WAC OCS
-03	Validation of WAC OCS Selection Instruments
-04	Phase I: Validation of Selection Instruments for Male OCS against School Criteria
-05	Phase II: Analysis of Criterion Variables. Development of Procedures for Classification of Male OCS Graduates to Arm or Service
-06	Validation of Male OCS Selection Instruments against Performance in Associate Basic Course
-07	Validation of Male OCS Selection and School Procedures against Later Performance as an Officer
-08	Item Analysis and Validation of the BIB, OCB-3
3403	Improvement of Tests and Techniques Used to Select ROTC Students