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Technical Research Report 1133

**STATUS REPORT ON RESEARCH  
FOR THE U.S. MILITARY ACADEMY  
(CADET LEADERS TASK)**



**U. S. ARMY PERSONNEL RESEARCH OFFICE**

# U. S. ARMY PERSONNEL RESEARCH OFFICE

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U. S. Army Personnel Research Office, OGRD, DA  
STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET  
LEADERS TASK) by Helen R. Haggerty, October 1963. Rept. on  
Cadet Leaders Task--27 p. Incl tables, 21 Ref. (USAFRO  
Technical Research Report No. 1133) Unclassified Report  
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In the continuation of psychological research for the United States Military Academy, initiated during WW II, effort has been largely concerned with improving selection procedures and with evaluating achievement in various aspects of the primary officer training programs. The present report deals with research undertaken in a series of projects covering the period 1 January 1957 through 31 December 1962. The two major problems with which the current research has been concerned are prediction of success of WP graduates in officer assignments and identification of types and at various levels and subsequent Regular Army officer careers. A number of instruments were developed and administered with the objective of supplementing current selection measures to provide more adequate assessment of motivation and leadership potential. Earlier findings were reinforced in that the Aptitude for the Service Rating (ASR) continues to maintain its predictive superiority over other WP measures with reference to later performance on both field grade and company grade officers. Continuing validity studies and extended follow-up research hold promise for provision of guidance to the USMA in evaluating training given to cadets.

AD 23/1. 26/4

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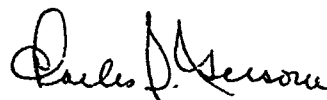
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Cadet Leaders Task

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## STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET LEADERS TASK)

### BRIEF

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#### Requirement:

There is continuing need to improve selection procedures for USMA and other primary training programs for officers, particularly with respect to identifying leadership potential and motivation for completion of training and an Army career.

#### Procedure:

Measures are being developed to identify applicants who show leadership potential and who also are motivated to complete the four-year USMA course. Studies include evaluation of measures of cadet achievement--academic grades, Aptitude for the Service Rating (ASR), physical proficiency--as predictors of officer performance and long-term Army service.

#### Findings and Accomplishments to Date:

The ASR has been established as the USMA cadet measure most usefully predictive of later performance both of field grade and company grade officers.

Peer ratings were found to contribute substantially to the stability of the ASR.

A selection instrument, the Inventory of Cadet Aptitude (IOCA), based on a series of studies to select content having validity for leadership potential and motivation for an Army career, has been developed and administered on a trial basis to entering classes.

#### Utilization of Findings:

If the experimental inventory yields satisfactory validity in the follow-up study now under way, the instrument will be recommended for operational use in selection of USMA cadets.

Results of follow-up studies of the validity of USMA measures for subsequent performance will provide guidance to USMA in evaluating training given to USMA cadets. Other results, particularly those on the ASR, may be generalizable to other primary officer training programs.



STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET LEADERS TASK)

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## STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET LEADERS TASK)

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### SCOPE OF THE PRESENT REPORT

The major primary training programs through which the Army obtains officers for commissioning are: (1) the program of the United States Military Academy, (2) the senior division units of the Reserve Officer Training Corps, and (3) the Infantry and the Artillery and Missile Officer Candidate Schools. To date, psychological research for the primary officer training programs has been largely concerned with improving selection procedures and with evaluating achievement in various aspects of the school programs in terms of their relationship to officer performance. Research effort has been directed toward the solution of unique problems in each of the three primary programs and stems from projects initiated during World War II. Early in 1957, a series of studies was initiated with the objectives of (1) determining the relationship between achievement at West Point and quality of officer performance of graduates, and (2) identification of qualities of cadet leadership and career motivation among applicants for the Military Academy. The present report deals primarily with this research and covers the period from 1 January 1957 through 31 December 1962.

### EARLY RESEARCH FOR THE USMA<sup>1/</sup>

#### Prediction of Success in Academic Courses, 1942-1956

In 1942, the Military Academy requested the assistance of the Department of the Army in the development of tests to predict the achievement of cadets in plebe-year (freshman) academic courses. Several experimental tests were tried out against course grades, particularly in English, mathematics, and foreign language. Based on validity coefficients in the .60's for predicting USMA achievement in English, mathematics, and foreign language courses, two aptitude tests (artificial language and mathematics) were implemented. The tests were used as part of the West Point entrance examination system until 1956, when the College Entrance Examination Board system was implemented.

#### Development of Physical Proficiency Measures

A considerable research effort went into the improvement of the Physical Aptitude Examination (for screening applicants) and improvement of the

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<sup>1/</sup>The research effort summarized here has been reported in Haggerty, 1953, Johnson, Haggerty, King, and Klieger, 1954, and Johnson, Klieger, and Burke, 1954.

physical education grading system. A large number and variety of physical proficiency measures were administered and analyzed to determine their effectiveness in predicting physical education course grades. Factor analyses of variables including physical proficiency measures and "anchor" variables were performed to identify the aspects of physical proficiency most relevant for West Point training and to provide West Point with information for developing alternate combinations of tests for the West Point Physical Aptitude Examination. One battery of four physical proficiency tests yielded a multiple correlation coefficient of .80 with physical education course grades.

#### Relation of USMA Measures to Later Officer Performance

Throughout their lifetime careers as Regular Army officers from second lieutenant to general officer, West Point graduates may serve in a variety of assignments--platoon leader, company commander, staff officer in small military units, command and staff position in larger units. The training program at West Point is designed to graduate men who will have (1) an adequate background of knowledge and skills upon which further development can be based, (2) the necessary physical hardiness and proficiency for field duty, and (3) the requisite leadership qualities for both command and staff assignments. Measures of cadet achievement consist of course grades in academic, tactical, and physical education courses, together with semi-annual ratings on the cadet's aptitude for the service. At the end of each year, a cadet is assigned class rank, or order of merit, based on the weighted sum of a number of components. This weighted sum is called Total Proportional Parts, and includes course grades in academic, tactical, and physical education courses and, since 1944, an Aptitude for the Service Rating. Maximum weights for the components are assigned by the Academic Board in accordance with the importance attached to each component<sup>2/</sup>. A final summary of proportional parts is made at the end of the first class (senior) year to provide a final order of merit for graduation.

The Aptitude for the Service Rating (ASR) is an evaluation of the cadet's leadership potential in military situations. The ASR's in APRO research reported to date have for the most part been composites of ratings made by a single tactical officer and the average of ratings made by other cadets in the company. The ASR, because of its established relationship to later officer performance, has served either as predictor or as criterion measure in many of the research studies conducted for the USMA. However, since success in academic courses is prerequisite to graduation from the Academy and officer commissioning, academic course achievement is the appropriate criterion for validation of cognitive selection measures.

<sup>2/</sup>In 1961, the USMA adopted grade point average as the measure of achievement in all courses.

One aspect of the earlier research dealt with the efficiency of West Point course grades and other cadet measures for predicting junior officer performance. Graduates of a number of classes from 1944 through 1953 were followed up through company grade assignments in stateside duty and in combat action in Korea. Both official Efficiency Report ratings and special measures of combat effectiveness were used as criteria of officer performance. In all these studies, the cadet ASR clearly demonstrated superiority over other cadet measures in prediction of officer performance within eight years of graduation, in both combat and non-combat assignments. For the ASR, validity coefficients of .45 to .50 have been usual. Validity coefficients of academic standing have typically been less than .15, overall class standing at graduation less than .20, standing in physical education courses generally less than .25.

#### Measures of Leadership and Career Motivation

One research area involved attempts to identify applicants for West Point who possess high potential in two non-cognitive areas: leadership in military situations and motivation for West Point training and subsequent Army officer career. Several preliminary paper-and-pencil self-report forms were administered to applicants and cadets and validated against the ASR. Validity coefficients of the preliminary forms were generally low with coefficients ranging from .07 to .35.

#### CURRENT RESEARCH FOR THE USMA

The two major problems with which current research has been concerned are continuations of prior efforts. These problems are the prediction of the success of West Point graduates in officer assignments of various types and at various levels, and the selection of those applicants for the Academy who are best qualified and motivated for completing West Point training and for a subsequent Regular Army officer career.

#### PREDICTION OF OFFICER PERFORMANCE OF WEST POINT GRADUATES

Previously reported follow-up studies have clearly demonstrated the superior validity of the Aptitude for the Service Rating for predicting quality of performance in various types of junior officer assignment. However, questions continue to be raised about various aspects of the prediction of such officer performance: Do ratings on aptitude for the service made by the tactical officer have more or less validity than ratings made by fellow cadets? Does the ASR continue to maintain its validity from class to class? Does the predictive superiority of the ASR hold for performance in field grade? Does any West Point measure predict whether an officer will remain on active duty following completion of his obligated tour of duty?

#### Validity of Ratings by Tactical Officers and by Cadets

Since its inception in 1944, the Aptitude for the Service Rating system has undergone a number of changes. Initially, each cadet was rated by his tactical officer, by his academic instructors, and by all other cadets of the company, and a composite score based on these ratings was used to assign proportional parts toward graduation. In 1948, ratings by academic instructors were dropped from the composite, and a single score was obtained from ratings by fellow cadets and the tactical officer.

Validity coefficients for predicting officer performance criteria by tactical officer ratings and by cadet ratings are presented below for graduates of four classes. In the first study, 78 graduates of the class of 1950 who had served in combat units in Korea were rated by other West Point graduates on an eight-point scale of overall effectiveness as platoon leader and/or company commander in combat. These ratings were obtained by a mail-order procedure and were used in validating a large number of West Point measures for graduates of the classes of 1944 through 1950 (Johnson, Haggerty, King, Klieger, 1954). Product-moment correlation coefficients between the combat criterion ratings and components of the first class year (senior) aptitude ratings were as follows: single rating by tactical officer,  $r = .51$ , average of ratings by cadet,  $r = .53$ , weighted composite rating,  $r = .54$ . A second study used an unofficial weighted average of Officer Efficiency Report scores as the criterion to validate first class year ASR components for 420 graduates of the class of 1954. Product-moment correlation coefficients were as follows:

	<u>Validity Coefficients</u>
Single rating by tactical officer	.37
Average of ratings by first classmen	.39
Average of ratings by second classmen	.36
Average of ratings by third classmen	.34
Average of ratings by fourth classmen	.33

In connection with the follow-up studies of the classes of 1948 and 1953 reported below, tactical officer and cadet ratings made at the first rating period were validated separately against OEI-59 with the following results:

	<u>Validity Coefficients</u>
Class of 1948, First rating-- (made in plebe year)	
Single rating by tactical officer	.26
Average of ratings by cadets	.38
Class of 1953, First rating-- (made in third class year)	
Single rating by tactical officer	.26
Average of ratings by cadets	.26

The pattern of validity coefficients, while not entirely consistent, favors the cadet ratings. A major reason for the usefulness of the cadet ratings is their reliability, due of course, to the number of raters. The cadet rating analyzed here represented the average of ratings by approximately 100 individuals, and hence would be expected to be more reliable than the single rating given by the tactical officer. Possible contamination of the ratings by knowledge of ratings given by other raters also enters into interpretation of these results--and this despite the extreme care taken to protect the confidentiality of the ratings. A tactical officer has access to ratings received by all cadets in his company. Some cadets may have acquired information about some of their classmates. All cadets receiving low ASR ratings are scheduled for conferences with the tactical officer following each fall and spring rating period, and this activity could be observed by cadets. However, the likelihood of validity inflation from such contamination was greater in the case of the tactical officer ratings than for the cadet ratings. The studies were important chiefly in emphasizing the contribution of peer ratings to the stability of the ASR.

#### Prediction of Officer Performance--Class of 1953

One of two follow-up studies of USMA graduates included an effort to identify, prior to entrance in the USMA, those applicants who will be best qualified as officers and best motivated for the Army officer career. Criterion of quality of officer performance was OEI-59; for career motivation, the criterion was remaining on active duty vs voluntary resignation. Two selection instruments were studied in relation to officer performance criteria for the class of 1953. The West Point Personal Inventory, which had been administered to the class of 1953 at the beginning of their plebe summer, had demonstrated validity for the ASR ( $r$ 's = .30 to .35). The Physical Aptitude Examination which had been used in selecting cadets of the class of 1953, had in previous studies shown validity for grades in physical education courses ( $r$ 's in the .60's and .70's and ranging up to .80--Haggerty, 1953). Four measures of graduation standing in a West Point class were analyzed as additional predictors: overall standing, class standing in academic courses, ASR, and class standing in physical education courses.

At the time of graduation, 379 graduates of the class of 1953 were awarded Regular Army commissions. Of these, 65 had resigned voluntarily by the end of December 1956; 27 more resigned during 1957 and 10 more during 1958 and 1959. At the end of December 1959, 258 were still on active duty.

Validity coefficients for predicting OEI-59 (product-moment  $r$ ) and remaining on active Army duty ( $r$  biserial) are given in Table 1. Correlation coefficients among the predictor variables and means and standard deviations are given in Table 2.

Table 1

VALIDITY OF TWO SELECTION MEASURES AND USMA GRADUATION STANDING  
(CLASS OF 1953) FOR OEI-59 AND REMAINING ON ACTIVE DUTY

Predictors	OEI-59 <sup>a</sup> r	Remained on Active Duty through 1956 <sup>b</sup> r <sub>bis</sub>
Graduation standing		
Overall	.27*	.03
Academic courses	.18*	.00
Aptitude for the Service Rating	.41*	.10
Physical education courses	.09	.06
Selection measures		
Physical Aptitude Examination	.01	.01
West Point Personal Inventory	.01	.02

<sup>a</sup> N = 253.

<sup>b</sup> N on active duty = 294; N resigned = 65.

\* Significant at the .01 level.



Table 2  
 CORRELATION COEFFICIENTS AMONG SELECTION MEASURES  
 AND MEASURES OF CLASS STANDING IN USMA CLASS OF 1953

Predictors	Variable Number	Mean	S.D.	Correlation Coefficients
Graduation standing <sup>a</sup>				
Overall	1	2834 <sup>b</sup> 2827	144 142	<u>1</u>
Academic courses	2	2418 2409	130 129	.97 .96 <u>2</u>
Aptitude for the Service Rating	3	315 316	35 35	.47 .46 .24 .21 <u>3</u>
Physical education courses	4	96 96	9 9	.19 .22 .10 .27 <u>4</u>
Selection measures				
Physical Aptitude Examination	5	277 279	63 66	.11 .12 .03 .02 .24 .28 .46 .48 <u>5</u>
West Point Personal Inventory	6	100 100	10 10	.12 .16 .05 .10 .23 .23 .21 .22 .20 <u>6</u>

<sup>a</sup>Scores in terms of proportional parts; maximum for graduation = 3540.

<sup>b</sup>Upper figure in each pair is for OBEI-59 sample (N = 253); lower figure is for original sample of graduates (N = 358).

As in previously reported studies, the ASR was the best predictor of officer performance; however, in contrast to studies previously reported, the graduation standing in physical education showed little predictive value. None of the West Point measures studied showed any useful validity for predicting remaining on active duty. Nor did either of the two selection measures show any validity for predicting either of the officer criteria although the inventory had a validity coefficient of .23 for predicting ASR in the OEI-59 sample and the Physical Aptitude Examination a validity coefficient of .46 for predicting grades in physical education courses, also in the OEI-59 sample.

#### Prediction of Officer Performance--Class of 1948

In 1959, a study was initiated to determine whether any cadet measures were related either to performance in field grade duty or to early promotion to field grade rank. Remaining on active duty following completion of the obligated tour constituted a third criterion.

The class of 1948 was selected for study since it was the first four-year class to graduate from West Point following World War II. Approximately one-third of the graduates were commissioned in the Air Force. Army commissions were awarded to 185 graduates. A large number of these had seen action in Korea and some had been killed in action or retired for disability. Because of the Korean hostilities, voluntary resignation from the Army following the completion of the normal three-year period of obligated service was not permitted, but this prohibition was removed toward the end of 1953. By December 31, 1954, 30 graduates had resigned their commissions to enter civilian life. At that time, 137 remained on active duty. By the end of December 1959, 120 graduates remained on active duty: 39 of these had been promoted to temporary major, 81 were captains.

As for the class of 1953, the following West Point measures were used as predictors: overall class standing at graduation; graduation class standing in academic courses; graduation class standing in Aptitude for the Service Rating; graduation class standing in physical education courses. Three criteria were used: (1) Overall Efficiency Index eleven years after graduation (OEI-59), (2) promotion to field grade by December 31, 1959, (temporary rank of major) vs no such promotion, and (3) remaining on active duty in the Regular Army vs voluntary resignation at the earliest permissible date. Product-moment coefficients were computed between the predictor scores and OEI-59 scores. For the other two criteria, biserial coefficients were computed.

The results of the analysis are given in Tables 3, 4, and 5. Table 3 contains the validity coefficients, Table 4 the intercorrelation coefficients among predictor measures for the major analysis subsample. In Table 5, means and standard deviations of the predictor measures in the graduating sample and in several subsamples are reported. OEI-59 means and standard deviations are included where appropriate, as are comparable figures for an earlier OEI (OEI-56) which were available for most of the graduates in the sample.

Table 3

VALIDITY OF WEST POINT MEASURES FOR PREDICTING  
THREE OFFICER PERFORMANCE CRITERIA (Graduates of the Class of 1948)

Graduation Standing	OEI-59 <sup>a</sup>	Validity Coefficients	
		Promotion to Field Grade <sup>b</sup>	Remaining on Active Duty through 1954 <sup>c</sup>
	r	r <sub>bis</sub>	r <sub>bis</sub>
Overall (all courses plus Aptitude for the Service Rating)	.34*	.02	-.04
Academic courses	.29*	-.04	-.05
Aptitude for the Service Rating	.44*	.45*	.08
Physical education courses	.26*	.18	.05

<sup>a</sup>N = 120.

<sup>b</sup>N for majors and higher = 39; for captains = 81.

<sup>c</sup>N for remaining on active duty = 137; resigned = 30.

\*Significant at the .01 level.

Table 4

CORRELATION COEFFICIENTS AMONG WEST POINT MEASURES  
(Graduates of the Class of 1948; OEI-59 Sample)

Graduation Standing	Variable Number	Correlation Coefficients (N = 120)			
Overall (all courses plus Aptitude for the Service Rating)	1	<u>1</u>			
Academic courses	2	.99	<u>2</u>		
Aptitude for the Service Rating	3	.28	.14	<u>3</u>	
Physical education courses	4	.31	.21	.52	<u>4</u>

Table 5

MEANS AND STANDARD DEVIATIONS OF WEST POINT MEASURES AND OEI SCORES  
FOR TOTAL SAMPLE AND SUBSAMPLES (Graduates of the Class of 1948)

Variables	Officer Grade					
	Total Sample (N = 185)	OEI-59 Sample (N = 120)	Majors and Up (N = 39)	Captains (N = 81)	Resigners through 1954 (N = 30)	
Graduation standing <sup>a</sup>						
Overall (all courses plus Aptitude for the Service Rating)	M	2916	2915	2917	2913	2925
	S.D.	145	144	135	148	161
Academic courses	M	2632	2629	2623	2633	2643
	S.D.	136	138	135	140	145
Aptitude for the Service Rating	M	190	191	200	187	188
	S.D.	18	18	15	17	17
Physical education courses	M	93	93	95	93	93
	S.D.	7	7	6	7	6
OEI-59 <sup>b</sup>	M	N/A	126	134	122	N/A
	S.D.		12	8	12	
OEI-56 <sup>b</sup>	M	N/A	119	130 <sup>c</sup>	115	N/A
	S.D.		12	6	12	

<sup>a</sup>Scores in terms of proportional parts; maximum for graduation N = 3540.

<sup>b</sup>Army standard scores.

<sup>c</sup>N = 28; eleven officers who were majors in 1956 were not included.

While the sample was small, validity coefficients given in Table 3 were taken as indication that the ASR continued to maintain predictive superiority over other West Point measures for some eleven years after graduation, whether the criterion was Efficiency Report ratings or promotion to field grade. While academic course grades and overall class standing (intercorrelation of .99) showed a higher degree of relationship to OEI than in earlier studies, neither was predictive of promotion to major. For graduates of the class of 1948, physical education course grades continued to bear a slight relationship to officer performance. Validity coefficients for remaining on active duty were all essentially zero, as in the follow-up of the class of 1953. Evidently a multiplicity of factors unrelated to professional promise as an officer determine whether or not an individual remains on active duty. Mean OEI-56 and OEI-59 scores given in Table 5 tended to confirm the often-noted relationship between OEI on the one hand and length of service or grade on the other hand.

These results with the classes of 1948 and 1953 supported continued use of the ASR as a useful measure of cadet performance and officer potential. Validity coefficients of .41 and .44 for overall officer efficiency and .45 for early promotion to major also supported use of the ASR as an intermediate criterion in the validation of non-academic selection measures.

#### IMPROVEMENT OF MEASURES FOR SELECTION OF WEST POINT CADETS

Because the number of vacancies at West Point each year is far smaller than the number of applicants, there is understandable concern that only the best qualified be selected for appointment. Current selection procedures include (1) tests of high school achievement and scholastic aptitude for college work, (2) a medical examination, (3) a test of physical aptitude, and (4) the evaluation of information on application forms and on recommendation blanks submitted by high school teachers and other persons. These procedures are under continual review to determine their adequacy. In addition to the current operational selection procedures, experimental tests of various types are under study to determine whether their use would result in more dependable selection of the better qualified individuals, particularly with reference to leadership potential and West Point motivation.

The Military Academy Personal Inventory, MAI-1 and MAI-2. In March and June 1957, the Military Academy Personal Inventory (MAI-1) was administered experimentally to applicants for the West Point class of 1961. This self-report form contained 350 items, most of which had shown consistent validity in prior research for officer selection programs (West Point cadets, ROTC Distinguished Military Graduates, and officer candidates) as well as in research for officer integration into the Regular Army. Of the items, 210 were forced-choice in format, 90 were yes-no, and 50 were five-choice. The MAI-1 included factual questions about attitudes, beliefs, interests, abilities (as self-estimated), and experiences. For the most part, the 350 items in the MAI-1 were selected as

intact clusters from two instruments which had previously been administered to West Point cadets. Scores on the selected clusters, combined with optimal weights, had yielded a validity coefficient of .40 in two subsamples.

Using plebe-year Aptitude for the Service Ratings as a criterion, subscores on the MAI-1 were analyzed to select content for a shortened form, the Military Academy Personal Inventory, MAI-2. Based on class of 1961 data, overall validity for MAI-2 was estimated at .34 against the ASR.

Valid clusters of items resulting from the above analysis constitute the MAI-2. In 1959, the inventory was administered to approximately 2,000 applicants. Of these nearly 700 were admitted to West Point in July 1959 (Class of 1963). The cross-validity coefficient of the MAI-2 was .27 for predicting plebe-year ASR.

The Military Academy Questionnaire, MAQ-1 and MAQ-2. The problem of cadet resignation from West Point is of increasing concern to the West Point staff and to the Department of the Army. For a number of years, resignation rate for the plebe year (when most resignations take place) had averaged around 10 percent, with slight fluctuations from year to year. While this rate was not extreme when compared with withdrawal of students from four-year colleges and universities as a whole (Iffert, 1958), it did represent a sizable amount of wasted expenditure in money and in time. Recently, the resignation rate has been increasing. Various means have been proposed to supplement present selection procedures to identify those qualified applicants who are best motivated for attendance at West Point and for a subsequent Army career.

One such proposal involved the administration, as part of the entrance examination, of a paper-and-pencil self-report instrument designed to identify applicants whose motivational patterns and personal background are such as to make it likely that they will resign voluntarily from West Point before they complete the four-year course. Work on such an instrument was initiated in 1953. At that time a comprehensive analysis was made of the following:

1. Amount of cadet resignation over a period of years.
2. Reasons for resignation given by cadets of several classes, by USMA personnel, by parents, and by other interested individuals.
3. Environmental factors (both in the cadet's background and at USMA) believed to be relevant to decision to resign from West Point.

Tentative hypotheses were formulated as to the personal characteristics of highly motivated and poorly motivated applicants, and a large pool of self-description items was assembled, most of them written specifically for this purpose. Completion of a printed experimental instrument was postponed until tryout of such an instrument could be scheduled.

In 1957, work on this project was resumed. The 1953 source materials, hypotheses, and items were reviewed in the light of intervening experience. The official papers of cadets of the class of 1961 who entered in July 1957 and who resigned prior to 1 October 1957 were also examined. The 1953 hypotheses about resigner characteristics were judged to be generally appropriate for use in an experimental instrument. The resulting instrument was titled the Military Academy Questionnaire, MAQ-1.

The final experimental form of the MAQ-1 consisted of 350 items. Fifty of these were five-choice items, the examinee being directed to select one best answer. The other 300 items were two-choice items, most of the yes-no variety. The content of the MAQ-1 included questions about background, attitudes, abilities, and interests, parental occupation, personal and professional goals, anticipations about West Point training and an Army career.

Ideally, an experimental instrument designed for use with an applicant population would be tried out with applicants. However, since try-out of the MAQ-1 with applicants in March 1958 was not feasible, the form was administered in July 1958 to plebes of the class of 1962 shortly after they reported to West Point. Examinees were instructed to respond as though they were applicants. Admittedly, the type of item response and the expressed motivational patterns of applicants could differ markedly from those of admitted plebes. The form was administered by a USAPRO representative, and special care was taken to assure the examinees that their answer sheets would not be seen by any official at West Point or by anyone in a position to influence their careers.

In September 1959, information as to the plebe-year performance of the class of 1962 became available, and an analysis of the validity of the individual MAQ-1 items for predicting West Point motivation (completing plebe year successfully vs plebe-year resignation) was undertaken. The specific objective of this analysis was to identify the most promising items in the MAQ-1 for incorporation into a shortened experimental form, the MAQ-2, designed for administration within a one-hour period.

The MAQ-2 includes 44 of the 50 five-choice items and 156 of the two-choice items from MAQ-1, with content generally representative of that in MAQ-1. MAQ-2 was administered in March 1960 to all applicants for the West Point class of 1964. In addition, all June 1960 West Point applicants were tested with the MAQ-2. At the end of the plebe year (July 1961), criterion data (plebe-year resignation) became available. By the end of July 1961, two forms of the Military Academy Personal Inventory (MAI-1 and MAI-2, to predict cadet leadership) and two forms of the Military Academy Questionnaire (MAQ-1 and MAQ-2 to predict plebe resignation) had been administered. The long forms had been analyzed and criterion data for item analysis of the short forms, MAI-2 AND MAQ-2, were available.

The Inventory of Cadet Aptitude, IOCA-1. In the meantime, a third instrument was being developed--the Inventory of Cadet Aptitude, IOCA-1--which contained new items believed to have potential for predicting cadet

leadership and/or cadet motivation for West Point training. IOCA-1 was administered in July 1961 to cadets of the class of 1965 newly reported to the Academy and in March 1962 to applicants for the class of 1966.

The IOCA-1 contained 90 items. There was no single right answer for most items and no predetermined empirical scoring scheme. A high score on Section I (30 items) was believed to measure acquisitiveness. The other 60 items (Section II) are concerned with social situations or work problems.

#### Current Status of West Point Selection Research

To prepare an experimental test for administration to West Point applicants during the March and June 1963 testing period, validity analysis of the MAI-2, the MAQ-2, and the IOCA-1 was undertaken, using available data for classes of 1963, 1964, 1965, and 1966. For each test, several predetermined scoring keys were specified, some based on previous empirical data, others on hypotheses as to the characteristics of applicants who might be high in leadership potential or in motivation for West Point training. The keys are listed in Table 6. Item-key coefficients using scores on these keys were one basis for item selection for the new test.

Two criteria were used for validation of item responses: plebe-year ASR and plebe-year motivation for remaining at West Point. Plebe-year ASR was available for the classes of 1963, 1964, 1965, but not for the class of 1966. Plebe-year motivation was defined as successful completion of plebe year vs voluntary resignation prior to beginning of academic classes in third class year. For the class of 1966, the cut-off point for voluntary resignation was before beginning of academic courses during the plebe year.<sup>3/</sup> Table 7 lists the samples and criteria used in the analysis.

Largely on the basis of this analysis, the IOCA-2 was constructed. Table 8 shows the structure of the instrument and sources of the 265 items taken from earlier forms. Newly written items were added, making a total of 291 items. Validation criteria for this new test will become available after July 1961. If the test proves to have significant validity, consideration will be given to recommending it for operational use in West Point selection.

<sup>3/</sup>Key validity coefficients for predicting ASR were product-moment coefficients; for predicting motivation they were point biserial coefficients. Item-validity coefficients and item-key coefficients ( $r_{pt\ bis}$ ) were computed for each item using both criteria as available and each of the keys represented in a given test.



Table 6

## CONTENT AREAS USED IN THE ANALYSIS OF MAI-2, MAQ-2, AND IOCA-1

Content Areas	Number of Items		
	MAI-2	MAQ-2	IOCA-1
Motivation for West Point training and an Army career	-	15	-
Ready acceptance of authority and discipline	13	15	6
Self-confidence in leadership situations	14	7	-
Athletic experience, vigor, hardiness	11	16	-
Facility in interpersonal relationships	12	13	12
Freedom from dependence on family and from family responsibilities	-	10	5
Avoidance of social interaction, withdrawal	-	-	35
Acquisitiveness	-	-	30
Overall	200 <sup>a</sup>	-	58 <sup>b</sup>
Overall	179 <sup>c</sup>	-	-
Apprehensiveness (general)	-	18	-
Specific concerns about cadet life	-	12	-

<sup>a</sup>Empirical leadership key.<sup>b</sup>Overall judgment key.<sup>c</sup>Empirical leadership key (modified).

Table 7  
 SAMPLES AND CRITERIA USED IN THE ANALYSIS OF MAI-2, MAQ-2, AND IOCA-1

Test	West Point Class	Time of Testing	Number of cases involved for each criterion	
			Plebe-year ASR	Motivation for West Point Remain      Resign
MAI-2	1963	As applicants (1959)	533	533      59
MAQ 2	1964	As applicants (1960)	535	535      71
IOCA-1	1965	As admitted plebes (1961)	631	627      88
IOCA-1	1966	As applicants (1962)	--- <sup>b</sup>	644      52

<sup>a</sup>For classes of 1963, 1964, 1965: remaining at West Point through summer after plebe year vs voluntary resignation prior to end of specified period. For class of 1966: remaining at West Point through plebe summer (first 8 weeks at West Point) vs resigning during plebe summer. Cases separated for reasons other than voluntary resignation excluded altogether.

<sup>b</sup>Not available at time of analysis.

Table 8  
SOURCES OF ITEMS IN IOCA-2

Type of item	Total number of items	Number of items from each source					
		MAI-1 <sup>a</sup>	MAI-2	MAQ-1 <sup>b</sup>	MAQ-2	IOCA-1	New
Section I Yes-No personality items	120	35	10	32	17		26
Section II Forced-choice personality pairs	26	6	19		1		
Section III Annoyance personality items	22				22		
Section IV Questions of concern	18				18		
Section V Attitudes toward possession of equipment	30					30	
Section VI Background, attitude, interest items	35	1	8		26		
Section VII Social and work situations	40					40	
All sections	291	42	37	32	84	70	26

<sup>a</sup>Items not included in MAI-2.

<sup>b</sup>Items not included in MAQ-2.

## SUMMARY

The research studies reported here have been a continuation of a program of research for the United States Military Academy which was initiated early in 1942. Particular emphasis has been placed on augmenting the earlier studies both with respect to following up graduates for longer periods of time and in different levels of duty and also with the objective of supplementing the current selection measures to provide more adequate assessment of the motivation and leadership potential of the applicants.

Results of the more extended follow-up have reinforced earlier findings in that the Aptitude for the Service Rating continues to maintain its predictive superiority over other West Point measures so far as officer performance criteria are concerned. It remains a useful intermediate criterion for the validation of noncognitive selection measures. Subsequent classes will be followed up to determine the reliability of results reported here and to continue the investigation of the relationship between West Point measures and performance in officer assignments of various types.

Research directed toward improving and augmenting procedures for selection of cadets characterized by strong West Point motivation and leadership potential is progressing more slowly. The situation in which a cadet is placed at the Academy is extremely complex. In this situation, successful completion of West Point may be accomplished by cadets with varying patterns of personal characteristics and abilities and varying family requirements. Continuing research to identify the most promising applicants is under way.

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<p>AD 23/1, 26/4</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>	<p>U. S. Army Personnel Research Office, OGRD, DA STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET LEADERS TASK) by Helen R. Haggerty, October 1963. Rept. on Cadet Leaders Task--27 P. Incl tables, 21 Ref. (USAPRO Technical Research Report No. 1133) (DA Project: 21024701A722)</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>
<p>AD 23/1, 26/4</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>	<p>In the continuation of psychological research for the United States Military Academy, initiated during W. II, effort has been largely concerned with improving selection procedures and with evaluating achievement in various aspects of the primary officer training programs. The present report deals with research undertaken in a series of projects covering the period 1 January 1957 thru 31 December 1962. The two major problems with which the current research has been concerned are prediction of success of WP graduates in officer assignments of various types and at various levels and identification of those applicants who show leadership potential and who also are motivated to complete USA training and subsequent Regular Army officer careers. A number of instruments were developed and administered with the objective of supplementing current selection measures to provide more adequate assessment of motivation and leadership potential. Earlier findings were reinforced in that the Aptitude for the Service Rating (ASR) continues to maintain its predictive superiority over other WP measures with reference to later performance on both field grade and company grade officers. Continuing validity studies and extended follow-up research hold promise for provision of guidance to the USA in evaluating training given to cadets.</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>
<p>AD 23/1, 26/4</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>	<p>U. S. Army Personnel Research Office, OGRD, DA STATUS REPORT ON RESEARCH FOR THE US MILITARY ACADEMY (CADET LEADERS TASK) by Helen R. Haggerty, October 1963. Rept. on Cadet Leaders Task--27 P. Incl tables, 21 Ref. (USAPRO Technical Research Report No. 1133) (DA Project: 21024701A722)</p>	<p>UNCLASSIFIED Human Resources Research --Personnel Measurement</p>
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