Final Report
76-32

HumRRO
ED-76-32

LEVEL

HumRRO

AD A070422

DDC FILE COPY

Reenlistment Evaluation: A Study of The Army Reenlistment System and An Evaluation of Current and New Reenlistment Standards

by

Richard J. Orend, Christine Bernardeau,
Theodore Rosen and Myron Rimm

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

September 1978

Prepared for

U.S. Army Research Institute for the
Behavioral and Social Sciences
1300 Wilson Boulevard
Arlington, Virginia 22209

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: FR-ED-76-32
2. GOVT ACCESSION NO.:
3. RECIPIENT'S CATALOG NUMBER:

4. TITLE (and Subtitle): Reenlistment Evaluation: A Study of The Army Reenlistment System and An Evaluation of Current and New Reenlistment Standards

5. TYPE OF REPORT & PERIOD COVERED: Final Report, 14 Jul [redacted] 14 Sept [redacted] 1976

6. PERFORMING ORG. REPORT NUMBER: ED-76-32

7. AUTHOR(S): Richard J. Orend, Christine Bernardeau, Theodore Rosen, Myron A. Rimm

8. CONTRACT OR GRANT NUMBER(S): DAHC19-76-C-0004

9. PERFORMING ORGANIZATION NAME AND ADDRESS:
Human Resources Research Organization (HumRRO)
300 North Washington Street
Alexandria, VA 22314

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 2Q, 1304

11. CONTROLLING OFFICE NAME AND ADDRESS:
U.S. Army Research Institute for the Behavioral and Social Sciences

12. REPORT DATE: Sept [redacted] 1976

13. NUMBER OF PAGES: 120

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office):

15. SECURITY CLASS. (of this report): Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE:

16. DISTRIBUTION STATEMENT (of this Report):
This document has been approved for public release and sale; its distribution is unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report):
HUMRRO-FR-ED-76-32

18. SUPPLEMENTARY NOTES:

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Current Reenlistment Standards
New Reenlistment Standards
Reenlistment Process
Predictive Validity

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The objectives of the study were to examine the current reenlistment process, evaluate the post-reenlistment predictive validity of current reenlistment and several new reenlistment standards, and determine the impact of any new standards on the selection of subsequent reenlistees. The study was restricted to the use of data already available on the EMTR or in personnel files. Results showed new standards as somewhat better predictors of post-reenlistment PMOS scores than current standards for

(continued)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

405 260

Block 20 (Continued):

both first-term and career reenlistees. However, the amount of explained variance was not large (due, at least partially, to severe data problems and pre-selection of subjects from among only those who had already been allowed to reenlist) and prediction of failure for a later reenlistee sample was marginal. Future research directions are suggested.

Final Report
76-32

HumRRO
FR-ED-76-32

HumRRO

Reenlistment Evaluation: A Study of The Army Reenlistment System and An Evaluation of Current and New Reenlistment Standards

by

Richard J. Orend, Christine Bernardeau,
Theodore Rosen and Myron Rimm

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

September 1976

Prepared for

U.S. Army Research Institute for the
Behavioral and Social Sciences
1300 Wilson Boulevard
Arlington, Virginia 22209

TABLE OF CONTENTS

TABLES

TABLES

APPENDICES

APPENDIX II (continued)

APPENDIX

APPENDIX

SUMMARY

It was the overall objective of this study to provide information on the functioning of the current reenlistment system, the quality of the supply of potential career personnel, and, most importantly, to begin to develop a research basis for the generation of new reenlistment standards. This general objective will provide simultaneous steps toward overcoming each of the major shortcomings in our information about reenlistment standards. Also, it will provide an integrated approach to this problem where that kind of analysis previously has been lacking.

Specifically, the study has three objectives:

(1) To examine the current reenlistment system to determine: (a) how reenlistment standards are applied; and (b) what is the extent of their predictive validity.

(2) To develop quantitative measures of reenlistment standards. The eight "new" reenlistment standards suggested by Orend and Kriner serve as the basis for additions to the current reenlistment standards.* New standards used here are based on the availability of data already contained in personnel records or retrievable from computer tapes. The intent of this initial evaluation of predictors of post-reenlistment success is to increase the potential for change by eliminating the need for altering evaluation procedures.

(3) To determine the extent to which more recent reenlistees meet standards developed in the earlier analysis.* That is, if different reenlistment standards were found to be better predictors of future success than current standards, what effect does the application of the new factors have on the availability of soldiers currently in the system.

* Orend, Richard J. and Kriner, Richard E. Assessing Reenlistment Eligibility: A Preliminary Examination of Some New Criteria for Reenlistment. HumRRO, Special Report ED-75-11, Alexandria, VA, January 1975.

Procedures

In order to accomplish these objectives the following general approach was taken:

(1) The formal procedures and requirements for reenlistment were examined to determine, to the extent possible, how the current system operates. Particular emphasis was given to waivers and decisions about the application of the several types of waivers. This analysis was accomplished by thoroughly examining Army regulations and by interviewing key personnel in the reenlistment process.

(2) The second part of our study is an examiantion of the predictive validity of current reenlistment standards and new standards developed from the existing data base. In this analysis we studied the predictive capabilities of: (a) the current reenlistment standards (Enlisted Efficienty Report Total Score [EERT], Primary Military Occupational Specialty Test Scores [PMOS], Education Level, Waivers and Army Classification Battery Scores [ACB]); and (b) new standards developed from data on individual performance which was already available (AFQT level, number of ACB's over 90, EER Attitude Score, EER Leadership Score, EER Duty Performance Score, selection to NCO school and the availability of a Language Aptitude Test Score [LATS]). Several of the most commonly used demographic variables (Race, Releigion, Region of the Country, and Educational Level) were included in the analysis as moderators. Since these cannot be used as selection standards their inclusion is for comparison purposes.*

These predictor (independent) variables were tested in a regression analysis to determine how well they predicted four criteria (dependent) variables: (a) time to grade; (b) speed of most recent promotion; (c) PMOS test score after

* The exception is education level (absolute level as opposed to the dichotomous approach currently used) which presumably could be applied as a selection standard.

reenlistment; and (d) a combination of these variables used to differentiate poor, average, and superior performances.

(3) The third analysis is directed at predicting future success of recent (1975) reenlistees, i.e., what happens when the standards established for an earlier cohort of reenlistees (those who reenlisted in FY 1973) are applied to a later sample. In this analysis an attempt was made to determine the proportion of 1975 reenlistees who could have been refused reenlistment on the basis of performance on the best predictor variables discovered in our regression analyses. That is, do the new standards substantially restrict the supply of reenlistees.

Results

1. The current reenlistment selection system, as specified in various official manuals and expanded by Army personnel working with the system, was described and discussed. The eight general standards are listed and the elaborate waiver and exception process is described. These standards are fit within the process for reenlistment and selection of those allowed to reenlist. In addition, a discussion of the application of waiver and individual decision processes is also included. It appears that there is a great deal of leeway left to individual commanders and selection boards which does not fall under specific rules for reenlistment. Thus, standards which are largely variable and the absence of rules for making decisions on marginal cases leaves the system very open-ended and with little built-in quality control.

2. Regression analyses identified some variables as weak predictors of post-reenlistment success. In combined runs of all variables, the only current standard found to be a statistically significant predictor was PMOS score before reenlistment for first-term reenlistees. In a separate run using only new predictors ACB score

over 90, AFQT, and two EER sub-scores (Leadership and Duty Performance ratings) were significant predictors. The combined run accounted for 11.6% of the total variance. For career reenlistees (2nd or later reenlistment) the significant variables were very similar and the explained variance was increased to just over 17%. Examination of correlation matrices for explanations produced little additional help. Given severe missing data problems and low variance on some independent variables (i.e., individuals had been selected on these standards and EER results were uniformily high) these are acceptable results.

Two other criteria variables, Time to Grade and Time to Promotion, were also examined. Data limitations restricted these analyses to career reenlistees only. The results for these regression runs were somewhat poorer than results for PMOS with only 8% of the total variance explained for Time to Grade and somewhat less for Time to Promotion. The high intercorrelation between these variables explains the high similarity in results.

Combining the three criteria into a single measure of soldering ability did not increase our ability to predict high and low quality reenlistees. This seems due, in part, to a severe regression-to-the-mean problem produced in this conjoint variable.

The final analysis was an attempt to predict success of FY 1975 reenlistees on post-reenlistment measures (PMOS) from the equasion developed on the FY 1973 sample using the same predictors and criterion variables. This resulted in a prediction that only 1% and 2% of the career and first-term reenlistees respectively would not be likely to achieve at least "average" scores on subsequent tests. Real figures would be tested in 1976 and 1977 data as they become available.

Conclusions

The lack of large magnitude results in the regression analysis makes conclusions difficult and somewhat slanted toward the negative. But some important findings were in evidence as a result of our two-pronged approach to the problem of reenlistment criteria.

1. It is evident from both our investigation of the operation of the system and our testing of predictive powers of the reenlistment criteria that the current reenlistment system provides little quality control or management for the Army. It essentially screens only the worst prospective reenlistees, letting all others through. Results using the dichotomized PMOS score best demonstrate this argument. Using actual PMOS score greatly increases predictive (and therefore control) capabilities.

In addition, even if tighter cut-off points were set, it is unlikely that they would be able to select the best qualified reenlistees. If the Army's objective is to reenlist as many willing candidates as possible, the limitations to the reenlistment system are not particularly damaging. If real quality control is desired, it seems evident certain changes are in order.

2. The current reenlistment system and the Manpower Management System are not well integrated. Again, if real control is to be achieved over the total system and the individual elements within that system, e.g., proper distribution in skill areas, most efficient use of individual skills, avoidance of grade logjames, etc., then better integration must be accomplished.

3. This conclusion concerns the data used to accomplish our study. Perhaps results of this and all studies using these data should be tempered by considering the source of the information. A large amount of missing data, and, we estimate, incorrect data make studies of the reenlistment system very difficult. Mechanizing

some of this information may help, but a far greater asset would be tighter controls on its collection and recording.

4. In predicting post-reenlistment PMOS scores, the only crirerion variable where both first-term and career reenlistees could be tested, a certain amount of success was obtained using both current standards, particularly PMOS scores before reenlistment, and new standards, especially EER sub-scores on leadership and duty performance, ACB scores over 90, and AFQT score. There was, however, a failure of "new" standards to add important new dimensions to the prediction of post-reenlistment success. This is partially due to criteria selection and partially due to our forced reliance on the results of the current evaluation systems. The EER seems to be of virtually no use in differentiating good from not-so-good soldiers. Quality selection based on this instrument cannot be effective until the evaluation system is changed. New and explicit means to evaluate individuals on the criteria for good soldiering are necessary.

Because this paper represents a first attempt at systematic evaluation of the reenlistment processes and standards, it should probably not have been expected to discover dramatic results, particularly in light of the condition of available data. In part, the objectives of the study were to discover just these kinds of hindrances to the examination of the reenlistment system. Among other outcomes of the research is the suggestion of what areas need to be considered in future studies on selection of reenlistees and the reenlistment system.

Among these suggestions are:

1. The study of the current reenlistment system focussing particularly on how individuals and boards decide marginal cases in the absence of specific guidelines;

2. The study of the interaction of the current reenlistment system and the Army's manpower management system;

3. An attempt to arrive at an agreed upon definition of "success," by either conceptual or empirical means, so that future research can be conducted on common basis; and

4. The development of studies using new predictor variables measured independently of currently available data, so that severe data problems can be overcome.

INTRODUCTION

Information Requirements

Reenlistment criteria perform two crucial functions in the Army's management process. First, they form the basis for selecting individuals to continue Army careers, which means that they serve as the quality screening elements in increasing force effectiveness. Second, particularly at the first reenlistment, they act as the locus of control in the Army's manpower management system, which insures that total manpower requirements are met and maintained. Therefore, carefully designed criteria aid both in selecting quality personnel and in managing the overall manpower system.

The development of any set of valid and practical reenlistment standards requires the prior examination of three aspects of reenlistment. Initially, it is necessary to scrutinize the design and implementation of the current system. Next, specific predictors of reenlistment success must be isolated and assessed through a process of identifying present standards, developing innovative standards where necessary, and evaluating both old and new standards in operational terms. Finally, the standards thus generated must be investigated for their applicability to the supply of men interested in reenlisting in the Army.

These three information requirements operate within the restriction of the current Army reenlistment system. Thus, the conjunction of manpower management functions with the information requirements creates a second level of information interactions, to wit, how does the selection of reenlistees fit into the management of the Army manpower system? Although this interaction is an important element in the total manpower system it will not be considered in detail in this report. Instead, the analysis reported here centers on the three basic information needs.

Information Available

Prior to describing our findings in detail it is worthwhile to outline the status of information collection in each of the three areas.

(1) There is very little systematic information available about the operation of the current system. Beyond the specification of requirements in Army Manuals little is known about how individual evaluators and evaluation boards function, or what implicit standards they use to determine the fate of marginal individuals seeking to reenlist.

(2) The current "selection standards" are so diluted with exceptions that they have little impact.* The only effect seems to occur at the bottom of the scale where it may be assumed that particularly undesirable individuals are prohibited from reenlisting. Whether this is actually true has never been fully tested.

(3) The assessment of specific criteria has never been accomplished prior to analysis reported in this paper. Thus, virtually no evidence exists on the reliability or validity of current reenlistment criteria.

A number of supply studies have been carried out within the Army (particularly in terms of the Manpower Management System) and in DoD in general, but there seems to have been little effort to relate these estimates to the quality of reenlistees beyond the most rudimentary predictors (especially mental group and education level). The information requirement for forecasting the quality and quantity of potential enlistees has been largely unstudied.

Objectives

A set of limited objectives for this study were developed and examined in the subsequent research, using, as guides, our simplified model of information requirements and an examination of the extent to which those requirements have been met.

* See Current Reenlistment Process below.

It is our overall objective to provide information on the functioning of the current system, the quality of the supply of potential career personnel, and, most importantly, to begin to develop a research basis for the generation of new reenlistment standards. This general objective will provide simultaneous steps toward overcoming each of the major shortcomings in our information about reenlistment standards. Also, it will provide an integrated approach to this problem where that kind of analysis previously has been lacking.

Specifically, the study has three objectives:

(1) To examine the current reenlistment system to determine: (a) how reenlistment standards are applied; and (b) what is the extent of their predictive validity. Studying the formal presentation of the standards in Army manuals does not indicate what standards are really being applied, where the cut-offs are operational and to what extent waivers are being used for each.

(2) To develop quantitative measures of reenlistment standards. The eight "new" reenlistment standards suggested by Orend and Kriner serve as the basis for additions to the current reenlistment standards.* New standards used here are based on the availability of data already contained in personnel records or retrievable from computer tapes. The intent of this initial evaluation of predictors of post-reenlistment success is to increase the potential for change by eliminating the need for altering evaluation procedures.

(3) To determine the extent to which more recent reenlistees meet standards developed in the earlier analysis.* That is, if different reenlistment standards were found to be better predictors of future success than current standards, what effect does the application of the new factors have on the availability of soldiers currently in the system.

* Orend, Richard J. and Kriner, Richard E. Assessing Reenlistment Eligibility: A Preliminary Examination of Some New Criteria for Reenlistment. HumRRO, Special Report ED-75-11, Alexandria, VA, January 1975.

General Procedures

In order to accomplish these objectives the following general approach was taken:

(1) The formal procedures and requirements for reenlistment were examined to determine, to the extent possible, how the current system operates. Particular emphasis was given to waivers and decisions about the application of the several types of waivers. This analysis was accomplished by thoroughly examining Army regulations and by interviewing key personnel in the reenlistment process. The results are reported in Section 2.

(2) The second part of our study is an examination of the predictive validity of current reenlistment standards and new standards developed from the existing data base. In this analysis we studied the predictive capabilities of: (a) the current reenlistment standards (Enlisted Efficiency Report Total Score [EERT], Primary Military Occupational Specialty Test Scores [PMOS], Education Level, Waivers and Army Classification Battery Scores [ACB]); and (b) new standards developed from data on individual performance which was already available (AFQT level, number of ACB's over 90, EER Attitude Score, EER Leadership score, EER Duty Performance score, selection to NCO school and the availability of a Language Aptitude Test Score [LATS]). Several of the most commonly used demographic variables (Race, Religion, Region of the Country, and Educational Level) were included in the analysis as moderators. Since these cannot be used as selection standards their inclusion is for comparison purposes.*

These predictor (independent) variables were tested in a regression analysis to determine how well they predicted four criteria (dependent) variables: (a) time to grade; (b) speed of most recent promotion; (c) PMOS test score after reenlistment; and (d) a combination of these variables used to differentiate poor, average, and superior performances.

* The exception is education level (absolute level as opposed to the dichotomous approach currently used) which presumably could be applied as a selection standard.

(3) The third analysis is directed at predicting future success of recent (1975) reenlistees, i.e., what happens when the standards established for an earlier cohort of reenlistees (those who reenlisted in FY 1973) are applied to a later sample. In this analysis an attempt was made to determine the proportion of 1975 reenlistees who could have been refused reenlistment on the basis of performance on the best predictor variables discovered in our regression analyses. That is, do the new standards substantially restrict the supply of reenlistees.

Section 3 will describe the detailed procedures and results of analyses used in testing the predictive validity of current and new standards and projecting these results onto current reenlistees.

CURRENT REENLISTMENT PROCESS

In order to facilitate understanding of the reenlistment system, a study was made of both the formal directives and requirements and actual practices. This investigation was accomplished through examination of Army Regulations* (AR's) pertaining to reenlistment and through telephone interviews with DA personnel at the Division of Recruitment and Reenlistment, Military Personnel Directorate. Officers representing the Deputy Chief of Staff for Personnel (DCSPER) and the Enlisted Evaluation Activity (EEA), Military Personnel Center (MILPERCEN) were interviewed.

The topics of this study, in order of presentation, are:

Procedures for Reenlistment;

Qualifications for Immediate Reenlistment;

Waivers;

Bars to Reenlistment;

Decision-Making Process for Reenlistment Requests;

Year Group Management Plan (YGMP).

PROCEDURES FOR REENLISTMENT

Individuals past their first term of enlistment who wish to remain in the Army are required to adhere to the following procedures: (1) submit a DA Form 3340 to their immediate commanders, who determine the applicant's eligibility for continuing Regular Army service; (2) If an applicant fails due to qualifications standards, a request for waiver must be submitted through command channels in order to continue the reenlistment process;** (3) If the application is approved and there are no other formal bars to reenlistment, the individual is reenlisted.

---

* Refer to Army Regulation 601-280, Army Reenlistment Program, August 1, 1975; Army Regulation 600-200, Enlisted Personnel Management System, March 25, 1965.

** The number of individuals who do not pursue the matter and do not ask for a waiver is an interesting area of discussion and investigation but is beyond the scope of the present project.

First-term reenlistment is somewhat different. First-term soldiers are divided into Group 1 and Group 2 individuals at the time of reenlistment request. To qualify as a Group 1 Soldier (eligible for immediate reenlistment) an individual must meet three standards which reflect the Army's requirements for reenlistment eligibility: the soldier must not have any disqualifications on the criteria for immediate reenlistment; he/she must be a high school graduate or possess the GED certificate; and he/she must have received a PMOS evaluation score of at least 100. Group 1 individuals need only their unit commander's approval to reenlist. If a soldier does not qualify for Group 1, he/she automatically becomes a Group 2 individual and must gain MILPERCEN approval to reenlist via the waiver approval process.

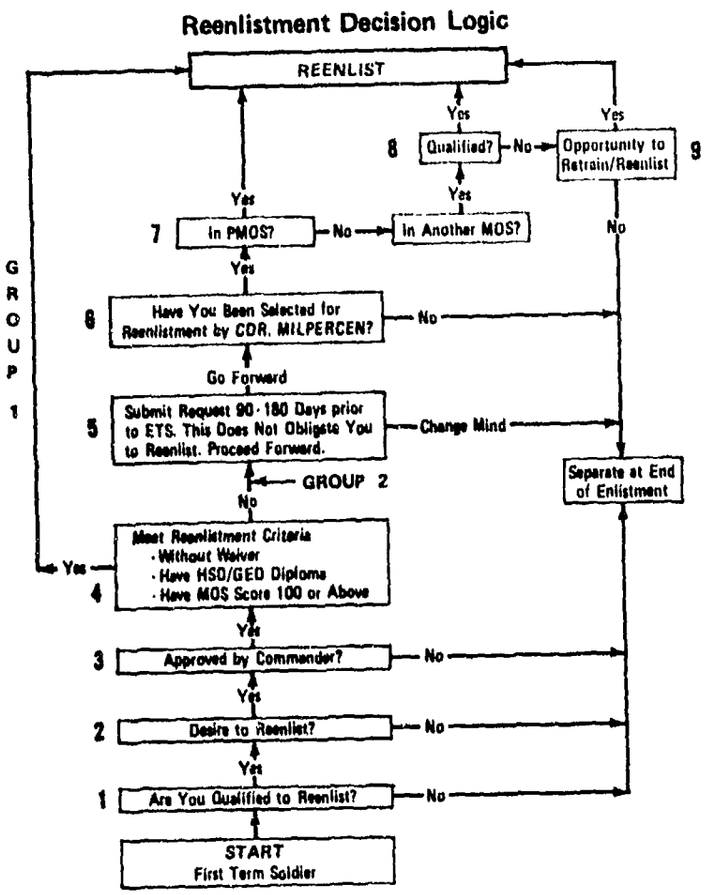
The decision-logic diagram of the Year Group Management Plan is presented in Figure 1. As noted on the figure, the Group 1 individuals follow a different decision path than Group 2 individuals.

AR 601-280 details the forms to be completed and formal requirements for the reenlistment ceremony, the final step in the procedure, which is administered by the individual's commanding officer or an officer of his/her choosing.

QUALIFICATIONS FOR IMMEDIATE REENLISTMENT

There are eight basic categories used to determine reenlistment eligibility: age, citizenship, trainability, education, medical, moral and administrative, grade, and Primary Military Occupational Specialty (PMOS) evaluation score. Each criterion is briefly discussed below in order to provide a background for the understanding of the reenlistment system. (The Complete discussion of these criteria can be found in AR 601-280.) Individuals who do not qualify for reenlistment on the basis of one or more criteria may submit a request for a waiver, if applicable, of their particular disqualification. These waiver requests must be routed through command channels to the appropriate authority in sufficient time to permit normal administrative processing. A full discussion

Figure 1: Reenlistment Decision Logic



of waivers is presented beginning on page 12.

Age

The individual must be 18-55 years old. Under certain conditions which may allow an individual to qualify for retirements, the age limit is raised to 60 years.

Citizenship

A soldier must be a citizen of the United States or a resident alien.* There are no exceptions to this requirement.

Trainability

An applicant must have a score of 90 or higher in at least three aptitude areas of the Army Classification Battery (ACB). Persons not meeting this criterion may be retested as appropriate (under the provisions of AR 600-200). This requirement is not waivable; however, extensions are allowed for the purpose of retesting.

Education

An applicant must meet the educational requirements for the next highest grade. For example, an E5 must possess a high school education or its equivalent before being reenlisted into a promotable position. An exception (waiver) to this requirement may be made if the soldier is enrolled in a course or program which, during the next term of service, will satisfy this requirement, or if the soldier has more than 18 years of service and seeks retirement eligibility.

* Resident aliens are those individuals who have applied for and been granted permanent U.S. residency while retaining their foreign citizenship. Others, such as students, tourists, and temporary workers, do not have permanent resident status.

Medical

Each applicant must meet the requirements of physical condition prescribed in AR 40-501, Standards of Medical Fitness, and any additional requirements prescribed for the specific option desired upon reenlistment. (Being overweight is a major problem in this category, and extensions may be granted by unit commanders for needed weight reduction.) Waivers may be granted by higher-level commanders to individuals in certain PMOS's who do not meet minimum requirements.

Moral and Administrative

These criteria include military and civilian behavioral disqualifications which are not covered by other criteria. Those individuals evaluated as "of no future benefit" to the Army may also be issued a bar to reenlistment. The Army specifies three types of disqualifications on moral and administrative bases:

(1) Waivable disqualifications. Included in this category are short periods of AWOL/time lost, and curable or recently rehabilitated drug addiction or alcoholism.

(2) Ineligible for immediate reenlistment disqualifications. Included here are temporary hardships, surplus in the individual's MOS, failure to complete individual weapons training, field commanders' bars to reenlistment, etc. (Due to their issuance procedures and unique effects on reenlistment, Bars to Reenlistment will be discussed separately below.) A person refused reenlistment for any reason in this category may, at a later date, be reenlisted if the situation changes.

(3) Nonwaivable disqualifications. This category includes insanity, conscientious objection, physical disability, bars to reenlistment issued under the provisions of Chapter 4, AR 600-200, etc.

Grade

Soldiers who have not reached a specified grade within a prescribed period of time cannot reenlist. The end of that period of time is called the Retention Eligibility Point (REP), when determination is made of satisfactory or unsatisfactory progress of enlisted personnel in each grade. However, high PMOS test scores, outstanding performance, or general eligibility for reenlistment without waiver are acceptable reasons for granting a waiver of this requirement. The cut-off points are:

E9 - 30 years
E8 - 27 years
E7 - 24 years
E6 - 20 years
E5 - 13 years
E4 - 10 years
E3 - 5 years
E2 - 3 years

This criterion serves as the basis for the qualitative retention feature of the Qualitative Management Program (QMP), which will be discussed in another section of this report.

PMOS Evaluation Score

An applicant for reenlistment must attain a current Primary Military Occupational Specialty (PMOS) Evaluation Score of 70 or more (mean = 100, Standard Deviation = 20), a composite score computed from an individual's MOS Evaluation Test, Enlisted Efficiency Report, and, where available, Performance Test scores. Waivers are granted only to individuals with more than 18 years of service to allow the individual to attain retirement eligibility.

The Primary Military Occupational Specialty is also occasionally used for retention of individuals who must receive a waiver for any of the eight basic criteria. If the individual's PMOS is deemed critical, that person may be retained via a waiver of the disqualifying criterion. The PMOS criterion is applied by the final waiver approval authority and through procedures discussed in the section on Decision-Making Process for Reenlistment Requests.

Waivers

A waiver is an action taken by the Army to allow an individual to reenlist, even though he may be disqualified on the basis of a particular criterion. There were 2642 waivers granted out of 56,368 reenlistments (4.7% of total reenlistments) during FY74, and, during the first nine months of FY75, the number increased to 3757 out of 47,247 (8.0%).[1] As discussed in the preceding section, some of the criteria may be changed by the waiver approval authority of an individual's unit, but a waiver request is submitted only in cases involving meritorious service.[2]

As the requests proceed through channels, each level of command must make a positive recommendation prior to final approval of reenlistment. (Exact final approval authority can be found in AR 601-280.)[3] If any one commander issues a negative recommendation, the waiver is considered disapproved and the request denied without further action. However, an individual may appeal a negative decision, and the appeal is judged at the next level in the chain of command. If the appeal is successful, the request continues up the chain. All requests for waivers requiring approval by CG, MILPERCEN, are forwarded to the United States Army Enlistment Eligibility Activity (EEA) which has the authority to act on behalf of the CG, MILPERCEN.

At EEA, each request for a waiver is assigned to a civilian analyst who must screen the official Army records of the requesting individual and prepare an "In-Service Case Worksheet," which summarizes demographic and behavioral

---

[1]Source: RCS-CSGPA-1144 Report; and DD, OASD (Comptroller), Directorate for Information and Control, (June 27, 1975).

[2]Meritorious service describes an individual's performance during the current term of service that, according to the unit commander, has compensated for any previous unsuitable disqualifying behavior or for any criteria requiring a waiver.

[3]See the section on Decision-Making Process for Reenlistment Requests.

information on the requesting individual and describes the applicant's physical characteristics. (See Appendix 1.) The analyst uses the worksheet, DA Form 3072 (Request for Waiver of Disqualifications for Enlistment/Reenlistment in the Regular Army for In-Service Personnel) and DA Form 3340 (Request for Regular Army Reenlistment or Extension) in preparing his final recommendation for or against reenlistment for each applicant.

Following the analyst's recommendation and his supervisor's review, a final decision is made on the waiver request by one of three persons at the EEA: the Commander, the Executive Officer, or the Actions Officer. If reenlistment is not recommended, the supervisor and decision officer must justify the negative action. Final review of the procedure is made by: Enlisted Personnel Directorate (EPD), MILPERCEN; Director, EPD; Division Chief; Branch Chief; and CDR, EEA, in that order.

Bars to Reenlistment

> It is HQDA policy that only personnel of high moral character, professional competence, and demonstrated adaptability to the requirements of the professional soldier's moral code will be extended the privilege of reenlisting in the Regular Army. Persons who cannot, or who do not, measure up to and maintain such standards, but whose separation under appropriate procedures is not warranted, will be barred from further service... (AR 601-280, p.1-8, 9)

Bars to reenlistment are issued to individuals whose fitness or unsuitability becomes apparent soon after enlistment in the Army, or to individuals who are non-progressive and/or unsatisfactory performers after several years in the Army. Bars to reenlistment are used by the Army in conjunction with the YGMP and recruiting plans in the attempt, based on the "quality man" concept, to improve the content of the enlisted force.

Since bars to reenlistment are nonwaivable, a bar on a soldier's service record at the time the unit commander reviews his/her record pursuant to a reenlistment request renders the individual absolutely ineligible for reenlistment.

There are two types of bars to reenlistment: the Field Commander's Bar (AR 601-280), and the Headquarters Department of the Army (HQDA) Bar (AR 600-200).

Field Commander's Bar to Reenlistment--Unit commanders are encouraged to seek out personnel whose performance and overall suitability is or deteriorates to below acceptable standards for continued service, even when immediate separation from the service is unjustified. A commander may issue a bar to reenlistment using two criteria of an individual's behavior: untrainability and unsuitability.

Untrainable Personnel--"There are individuals found to be so lacking in abilities and aptitudes as to require frequent or continued special instruction or supervision and will be identified as soon as possible with a view toward eliminating them from the service."

Unsuitable Personnel--"There are persons who may exhibit their unsuitability through interests and/or habits which are detrimental to the maintenance or good order and discipline and they may have records of habitual minor misconduct requiring corrective or disciplinary action."

In such cases, the unit commander must prepare a Bar to Reenlistment Certificate (DA Form 4127-R), which summarizes the specific, documented episodes leading to the commander's decision to initiate the bar. The soldier in question receives a copy of Form 4126-R, at which time he may gather evidence and submit a statement of defense on his own behalf.

Upon receipt of the individuals' comments and Form 4126-R, the brigade/regimental or separate battalion commander endorses the form and sends the material to the appropriate authority for final review. If the bar to reenlistment is upheld, the certificate is placed in the individual's personal field file.

Individuals with less than ten years' service at ETS are the only group who may appeal a bar to reenlistment decision. This appeal goes beyond the usual point for final decision (commanders delegated court-martial authority) to the commander exercising general court-martial jurisdiction. If the appeal is denied, the certificate is placed in the individual's personal file.

At any time following the placement of the certificate in any individual's file, the unit commander, if he "feels the individual has proven that he is worthy of retention in the Army,"* may recommend that the certificate be voided. Approval to void a bar to reenlistment may be granted by the same authority that endorsed the bar initially.

All bars to reenlistment are reviewed six months following approval, and each six months thereafter. They are also reviewed 30 days prior to the date an individual is scheduled to: (1) depart from his/her current unit; or (2) separate from the Army.

HQDA Bar to Reenlistment--HQDA bars to reenlistment result from the qualitative screening feature of the Qualitative Management Program (QMP) (Chapter 4, AR 600-200), which is designed to enhance the content of the career enlisted force by denying reenlistment to personnel who are non-progressive and/or unsatisfactory performers. This program has three major objectives:

(1) Improved career progression and promotion flow--
". . .accomplished by preventing promotion stagnation since each denial of reenlistment under the program will mean at least one additional promotion allocation to those who are selectively retained."

(2) Improved qualitative content of the enlisted force--
". . .accomplished by establishing termination points for each enlisted grade and by providing a management tool to screen out less qualified personnel."

---

* AR 601-280.

(3) Improved professionalism in the Army--

". . .accomplished by retaining high quality soldiers who are motivated to establish and maintain their eligibility to remain in the Army."

Qualitative screening procedures are applied continuously to enlisted personnel, grades E5 through E9, by the command sergeant major (CSM) selection board for E9 personnel and by the DA-centralized promotion boards for E5 through E8 personnel. Reviews of E5 personnel are limited to persons who have completed eleven years of Federal service.

The promotion boards are composed of senior officers and enlisted personnel appointed in accordance with DA directives. Instructions to these boards do not assign numerical objectives for bars to reenlistment, and board recommendations are based on a majority decision reached by secret ballot. Therefore, as in the waiver approval process, there is no way to determine what procedures are followed and what criteria are used in the review process.

A major function of promotion boards is to recommend bars to reenlistment. (Approval authority for board recommendstions lies with DCSPER. Bars approved by DCSPER are imposed at the discretion of CG, MILPERCEN.) Notice of the approval of an HQDA bar to reenlistment is sent to the barred individual's unit commander, who may either act on his own to request the removal of the bar, or who is required to assist the individual in requesting reconsideration, retirement, or discharge consideration. Either of these requests would then be forwarded to the general court-martial (GCM) convening authority. The GCM authority forwards the request, together with its recommendations, to MILPERCEN for a final decision.

If, over time, the individual shows reason for retention by subsequent improvement in performance, the unit commander may initiate a recommendation for removal of the DA-imposed bar to reenlistment. This recommendation must be received at MILPERCEN 30 days prior to scheduled ETS.

If an individual has less than twelve months to ETS upon receipt of the HQDA bar to reenlistment, the ETS may be extended up to twelve months from the date of the letter. This allows the individual to "enhance his/her competitive position as evidence by improved duty performance and/or MOS evaluation test performance, and therefore, show positive evidence as to the advisability of retention."

An individual's progression is evaluated at the retention eligibility point (REP), which reenlistment or extension contracts may not exceed. REP's may change as required by DA. Commanders listed in Appendix II are authorized to grant waivers to the retention eligibility point for personnel who meet the following criteria: commander recommendation based on review of Field 201 file; individual is otherwise eligible to reenlist without a waiver; individual has MOS score greater than 69. Reenlistment or extension may not exceed three years nor may it place an individual's ETS beyond the enlistment ineligibility point for the next higher grade.

Commanders who have waiver authority may also approve enlistment extensions for personnel who are first-time failures in their MOS (scores 41-69). This extension is for a period of time (not to exceed twelve months) sufficient to allow MOS evaluation during the next regular MOS evaluation period.

All waiver requests are initiated by the unit commander or reenlistment officer and must be submitted in accordance with Chapter 3, AR 601-280.

It would seem worthwhile to compare barred persons to other groups on the formal reenlistment criteria, as well as on individual test scores and personal evaluations, but there is currently no central data source available to indicate the types and number of bars to reenlistment actually issued.

Decision-Making Process for Reenlistment Requests

Army regulations describe all reenlistment procedures and authorities in great detail and provide objective criteria which indicate the degree to which an individual is technically qualified to reenlist. However, the regulations do not describe the decision-making process involved in the evaluations concerning the objective qualifications of the applicant. These evaluations will, in fact, ultimately determine an individual's tenure in the Army. Primary evaluation of applications is made by individual unit commanders. Applications for waivers, extensions of service, and exceptions to policy are evaluated by each commander in the chain up to the appropriate final approval authority. The evaluation procedures, as they occur in actual practice, were explored in the course of the interviews with Army personnel.

Each commander bases his approval/disapproval decision largely upon the information available from application forms for reenlistment or extension, previous recommendations from lower-level commanders, and the applicant's Field 201 File. In addition, all commanders in the reenlistment approval chain (including waiver, extension, and exception to policy waivers) are to evaluate each individual in terms of the "quality man" concept. However, there are no objective guidelines for commanders to follow in making their decisions.

Thus, subjective evaluation is an integral part of all reenlistment procedures. Interviews with reenlistment officers indicate that rigid application of the most stringent reenlistment criteria associated with the "quality man" concept does not, in all cases, guarantee that the "best" soldiers will be retained, since many individuals who did not appear to be well-suited to a successful Army career have become excellent soldiers following a positive retention evaluation. No data on the actual number of such successes are available to support this practice.

Year Group Management Plan

The Year Group Management Plan (YGMP) is a newly-initiated program which is applied only to first-term soldiers who desire to reenlist. Within the general framework of improving the qualitative content of the enlisted force, the plan is designed to (1) enable MILPERCEN to avoid shortages and overages in MOS's by adjusting reenlistment criteria to meet manpower needs; (2) provide qualified individuals with reliable career progression; and (3) allow the most qualified people to choose their career area, while other individuals are assigned by the Army to MOS's in which they can be most useful.

The reenlistment steps are described in Procedures for Reenlistment (above) and in Figure 1 (p. 8). It may be helpful to examine the operational aspects of these procedures more closely. For example, a comparison of the YGMP (Figure 1) with AR 601-280 indicates that first-term soldiers should be processed differently at Steps 3 and 4 than other soldiers seeking reenlistment. AR 601-280, Chapter 2, "Qualifications for Immediate Reenlistment," applicable to second-term or longer individuals, states that a request for reenlistment must be submitted to the unit commander, who decides whether or not the applicant meets the criteria prior to approving or disapproving the request. However, under the YGMP, requests for first-term individuals should be approved or disapproved prior to the determination of the status of the individual in relation to the criteria. The reenlistment officials interviewed in the course of this research were not certain that commanders were making the above distinction in the processing of requests.

EVALUATION OF CURRENT AND NEW STANDARDS

In the previous section a brief description of the reenlistment procedures has been presented. In this section a detailed description of the predictive validity of the formal standards used in this process is discussed along with a parallel discussion of a new set of standards developed from Orend and Kriner.* These analyses respond to part of Objective 1 and to Objective 2 presented on p. 3. Analysis of data pertaining to Objective 3, the impact of new standards on the retention of current reenlistees, is described in the last part of this Section. A detailed description of the methodology used is provided prior to presentation of the results of these analyses.

METHODOLOGY

This section describes the data base collection and the statistical analyses used in the evaluation of the reenlistment standards. In general, the data collection and analyses followed this path:

(1) Sampling -- samples were drawn from FY 1973 and FY 1975 enlisted reenlistees.

(2) Data -- data on each of these subjects were taken from the Enlisted Master Tape Record (EMTR) and hard-copy personnel files. These data included all variables needed for testing the current and new reenlistment standards.

(3) Analysis -- all variables were evaluated to determine their ability to predict "success" after reenlistment by using step-wise regression analysis procedures. Three success criteria and three sets of predictors were used. The predictor variables included one group based on current reenlistment standards, one group based on "new" standards, and one group of demographic variables.

* Orend and Kriner, Op. Cit.

Results of the analysis of FY 1973 reenlistees was used to project the success of FY 1975 reenlistees.

Sampling

In order to create a reasonable data base for conducting analyses, random samples of Army Enlisted personnel who reenlisted during Fiscal Years 1973 and 1975 were drawn from the Enlisted Master Tape Records.*

Individuals were used if they had reenlisted under one of the following conditions:**

H1: immediate reenlistment in Regular Army on day following date of separation from RA

H3: immediate enlistment in Regular Army on day following date of separation from Active Army in USAR enlisted status

H7: immediate enlistment in Regular Army following date of separation from Active Army in AUS enlisted status (draftee)

HA: enlisted-from civil life-within 2 to 90 days after date of separation from Regular Army

HC: enlisted-from civil life-within 2 to 90 days after date of separation from Active Army in USAR status

HG: enlisted-from civil life-within 2 to 90 days after date of separation from Active Army in AUS status

HJ: enlisted-from civil life-more than 90 days after date of separation from Regular Army

HP: enlisted-from civil life-more than 90 days after date of separation from Active Army in AUS status.

* A list of all enlisted reenlistees for FY 73 and FY 75, by Social Security Number, was provided by the U.S. Army, Military Personnel Center (MILPERCEN). From this total list samples were taken by using the SPSS random sample program.

** Code from Chapter 4, AR 680-29.

The total population of reenlistees meeting these conditions in FY 1973 was 53,299. Of these 6,436 cases were selected by our program. This rather large number was used because of anticipated data problems, i.e., we expected to lose approximately 25% of our sample because of missing information in files or on the EMTR.

A second sample, from among the same categories of reenlistees, was chosen for FY 1975. This sample consists of 2,382 cases from a total population of 79,143 reenlistees.

These two samples formed the basis for the beginning of data collection.

Data Requirements

Independent Variables: Three types of data were needed to carry out projected analyses. The first were indicators of individual positions on variables measuring the current reenlistment standards. The variables used in this analysis include:*

1. Primary Military Occupational Specialty Test Score (PMOS)**
2. Enlisted Efficiency Report Total Score (EER)
3. Education Level
4. Army Classification Battery Scores
5. Waivers.

The second group of variables includes those required to measure the new reenlistment criteria developed for comparison to current criteria.*** Orend and Kriner discussed eight new predictors of post-reenlistment success. Included were: cross-trainability; motivation/attitude; leadership; communication skills; sociability; job efficiency; change; and training ability. Of these, several

---

* Citizenship, which is also a criterion for reenlistment, was not included because all reenlistees must meet this requirement.

** PMOS was used as a dichotomous variables because that represents its actual application in the reenlistment process.

*** Orend and Kriner, Op. Cit.

were capable of being empirically measured by using currently available data. To measure cross-trainability the number of ACB scores over 90 and Secondary MOS test scores were selected. To measure motivation/attitude and job efficiency specific items from the EER were used. Additional communication skills were measured by the presence of an LAT score. Leadership was measured using an EER subscore and the presence of a recommendation to the NCO Academy.

Although the available data may not represent the best possible indicators of the new criteria, they do provide the most efficient means to test the potential for modifying the current system. In this study new criteria include only those which are measureable using available data. Thus, if a potential predictor of post-reenlistment performance was not available on one of the two major sources of individual data it was not included in the analysis. Variables used are:

1. Language Aptitude Test Score (LAT)
2. AFQT group
3. The number of ACB scores over 90
4. EER Attitude Score
5. EER Leadership Score
6. EER Duty Performance Score
7. EER Adaptability Score
8. EER Initiative Score
9. EER Responsibility Score
10. EER Advancement Potential Score
11. Recommendation for the NCO academy.

The third group of possible moderator variables is made up of demographic information available from our data sources. These variables were included not because they could serve as selection standards, but because they represent several of the more commonly used predictors of military performance and an

effort was made to determine if they accomplished that function better than the current or "new" standards for reenlistment. Included are:

1. Race (Black, White, and Other)
2. Geographic Region
3. Religion (Protestant, Catholic, and Other)
4. Number of Dependents
5. Education Level (not really a demographic variable, but included in this group for convenience)

Dependent Variables: Three indicators of success were selected for use as criteria (dependent) variables. These particular factors were chosen because they provided the best tangible indicators from among data that were available on tape or in hard form which could be applied to our total sample. The success indicators were:

1. Primary MOS score -- A post-reenlistment measure of success in the Army. Either an average of two scores for the post-reenlistment period or one available score was used to measure this criterion. From among indicators readily available in Service Records or on tape this score seems to be most reliable and least biased (as opposed to various personal rating forms).

Because of potential differences in PMOS score means and variances among the MOS's, a control was applied. Results are represented as standard scores with each score being calculated on the basis of Career Field data. Individual MOS's were not used because of too many instances with small N's.

2. Time to Grade -- the subjects' rank as of 1975 (last data entry). The faster the promotion rate, the "better" the soldier. Basic entry date and grade were used to calculate this success indicator.* Control for differences in grade was imposed by standardizing scores for each grade. Thus, rankings were

* Both Time to Grade and Time to Promotion may be best described as indicators of overall Army success because the basis for their calculation extends to the pre-reenlistment period. Unfortunately, more suitable post-reenlistment only variables were not readily available from the EMTR or 201 Files.

represented in Z-scores to indicate the speed of the individual reaching his grade relative to others in that grade.

3. Time to Promotion -- the length of time required for the subject to reach his current grade. This variable is calculated in the same manner as Time to Grade except that a cut-off is established at the most recent promotion date. Standard scores were used in the same manner as in Time to Grade. The small technical difference allows for the identification of earlier advancement as opposed to Time to Grade which could include long periods since the last promotion, particularly in the upper grades. As a practical matter, this dependent variable was included because data needed to compute each subject's most recent grade change (an indication of his performance after reenlistment) were not available and those required for calculation of Time to Grade were largely missing. (Time to Promotion and Time to Grade were expected to be quite similar.) The benefit in increased N was gained when these two variables were combined with the third criterion to build a composit indicator of success (to be discussed below).

4. Composite score -- In order to develop a measure of overall proficiency the three criterion variables were combined into a single score, by averaging "z-scores," and used as the final success variable.* Given available data, this score represents the best and most reliable indicator of general performance.**

Data Time Frame: The data analysis design required information for a reasonable time span so that changes could be observed. The original plan called for primary data on individuals who had reenlisted during FY 1973 for the period of FY 1971 through FY 1975. This would have provided information on subjects for two years prior to and two years after reenlistment. The unavailability

---

* PMOS, Time to Grade and Time to Promotion were used. When either Time to Grade or Time to Promotion was missing the average was taken over 2 scores. If PMOS score was missing the case was dropped.

** See Appendix IV for data list from which variables used in the analyses were compiled.

of FY 1971 data on the EMTR forced a one year reduction in the time frame, but still provided pre- and post-reenlistment data. Thus, for subjects reenlisting in FY 1973 data were collected for the years FY 1972 through FY 1975. The second sample was from among those who reenlisted during FY 1975. These individuals were to be used for projecting results of the earlier analysis. To accomplish this objective it was necessary to collect evaluative data for the period prior to reenlistment. For this purpose data were collected for the period from FY 1973 through FY 1975.

In both samples scores, evaluations, and descriptive information was collected for each applicable year. In the case of EER's and PMOS scores, it was collected for each year on each individual. For race and other unchanging variables it was collected only once.

DATA COLLECTION

Data were obtained from two primary sources, the Enlisted Master Tape Record (EMTR) and individual personnel files (201 files).* Of the variables listed above, the first 26 were obtained from the EMTR, while the remainder came from 201 files at Fort Benjamin Harrison, Indiana. The two sets of data were merged to form a master data file which was used for analysis.

Several noteworthy problems occurred during the data collection, which had a substantial impact on the analysis. These will be described here in order to prepare the reader for seeming inconsistencies appearing in the later analysis.

---

* Appendix 2 shows the frequencies for 1973 Sample, and Appendix 3 for 1975 Sample.

1. Samples -- The original list of social security numbers drawn from the EMTR did not always match personnel files available at Fort Harrison. Also, SSN's were not always reliable when data were extracted from the EMTR. Thus, of over 6400 original subjects in the sample, a maximum of only 6178 had any descriptive data included in our files. A total of 222 had no data on either the EMTR or in 201 files.

2. Missing Data -- The problems associated with incomplete records were far greater than those associated with individual identification. Tables 1 and 2 present information on the proportion of missing data for variables used in the regression analysis.* Substantial problems can be noted on EER and ACB scores.** An additional problem, which is masked in these tables, is that the missing information is not confined to a stable set of individuals. It seems to be more randomly distributed, so that finding one variable missing on a record is not necessarily indicative of others being absent. This creates problems for the regression analyses because each run, with a dependent and set of independent variables must have complete data for all subjects.

This problem was handled in the regressions analyses by allowing the computer to select all individuals with complete data for each run. Therefore, sample sizes vary on different runs according to the number of individuals who had complete data for the variables included in that analysis. Generally, the EMTR data were more complete than those data obtained from the 201 files, so runs with a greater proportion of EMTR variables are likely to have larger N's.

---

* Among problems encountered in data collections from 201 files were: incomplete files; missing files; files pulled (and temporarily unavailable) for administrative purposes; and a large backlog of files which had not been restored to their proper locations. Many of the problems will be eliminated when the Enlisted Records Centers change to a more automated system, although it is possible that a great deal of information will be lost in the change-over process.

** However, this does not mean the EMTR contained complete information. Large gaps are found in EMTR variables, also.

Table 1: Percentage of Missing Data for Each Variable - FY 1973 Sample (n = 6178)

Variable	FY 1972	FY 1973	FY 1974	FY 1975
Type of Last Accession	21.4	-	-	-
Career Area	17.8	0.2	0.7	6.5
PMOSE	60.7	42.7	17.4	8.3
State of Residence at Entry	-	8.1	-	-
Grade in which Serving	-	-	-	6.5
AFQT	30.3	13.1	13.7	18.4
Academic Level	22.1	4.0	3.4	7.6
Age	-	-	-	6.6
Race	-	-	-	6.5
Religion	-	25.7	-	-
EER Total	62.8	47.2	41.5	41.4
EER Attitudes	62.8	46.7	41.2	40.2
EER Leadership	62.8	46.7	41.1	40.2
EER Duty	62.8	46.7	41.2	40.2
ACB IN	47.5	-	-	-
ACB AE	47.4	-	-	-
ACB EL	36.5	-	-	-
ACB GM	35.6	-	-	-
ACB MM	35.3	-	-	-
ACB CL	35.1	-	-	-
ACB GT	32.9	-	-	-

Table 2. Percentage of Missing Data for Each Variable - FY 1975 Sample (N = 2382)

Variable	FY73	FY74	FY75
Type of Last Accession	----	17.2	----
Career Area *	----	----	----
PMOSE	61.4	49.0	17.7
State of Residence at Entry	----	----	6.7
Grade in which Serving*	----	----	----
AFQT	----	23.5	9.2
Academic Level	17.4	18.0	1.2
Age	----	----	0.7
Race	----	----	0.5
Religion**	----	----	----
EER Total	75.4	53.8	43.5
EER Attitudes	75.0	53.6	42.4
EER Leadership	75.0	53.6	42.4
EER Duty Performance	75.0	53.6	42.4
ACB IN	43.0	----	----
ACB AE	43.0	----	----
ACB EL	28.8	----	----
ACB GM	27.7	----	----
ACB MM	27.6	----	----
ACB CL	26.8	----	----
ACB GT	27.1	----	----

* None listed as missing.

** 31.2% were listed as having no religion. These may include "missing" data.

ANALYSIS

The basic objectives of our analysis were to determine the predictive capabilities of three sets of independent variables on the post-reenlistment success of Army enlisted personnel. The independent variable sets included:

(1) Those variables currently used to qualify enlisted personnel for reenlistment;

(2) A set of variables developed from available data, but which had not been used for this purpose previously; and

(3) A set of demographic variables.

These sets correspond to the three lists of variables described earlier. By comparing results of regression analyses for each set of predictor variables on the criteria scores it was possible to test the relative strength of each independent variable and relevant groups of variables.

The statistical technique used to test the contribution of each factor to explain post-reenlistment variance in performance quality and to compare the current criteria with the new criteria and demographic factors was stepwise regression analysis with forward (stepwise) inclusion of independent variables.* This technique allowed variables to enter the regression equation on the basis of statistical criteria which Nie suggests is most suitable for isolating "a subset of available predictor variables that will yield an optimal prediction equation with as few terms as possible."** This approach coincides with the goal of determining the best single set of predictors regardless of origin or current usage patterns.

* Kerlinger, Fred N. and Elazar, J. Pedhazur, Multiple Regression in Behavioral Research, New York: Holt, Rinehart and Winston, 1973, and Nie, Norman, et. al. SPSS-Statistical Package for the Social Sciences, New York: McGraw-Hill, 1975, p. 345.

** Nie, Ibid.

Regression runs were made on each dependent variable for (1) the current reenlistment criteria, (2) the new critieria, (3) the demographic variables, and (4) all variables (a combination of significant predictors from each of the other runs). When there was a large enough number of subjects, separate runs were made for individuals taking their first reenlistment and those taking their second or subsequent reenlistments. This provides a total of 24 possible regression runs, culminating in two runs which were to provide our best estimate of the individual and total contribution of tested variables on the variance of post-reenlistment performance.* These analyses also allow the comparison of different predictors and the identification of a best set of predictors insofar as they exist.

Individuals composing the FY 1975 sample were used to test the expected performance (on dependent variables used in these analyses) of a current group of reenlistees. Using the regression equation developed on FY 1973 subjects the FY 1975 sample predictor variables were used to determine an expected distribution of individuals on one success criterion for which there was an adequate sample. That is, values for precictor variables for those who reenlisted in FY 1975 were inserted into the PMOSE run regression equation developed on the FY 1973 sample. This procedure was used to determine expected values on the dependent variable (PMOSE) for the 1975 sample. Since a validation of these predictors must await the results of FY 1976 and later scores for this sample no direct measure could be obtained from available data. Instead, an estimate of the proportion of FY 1975 reenlistees who would be considered "inadequate" on success criteria performance was developed.

---

* The results of earlier analyses limited the usefulness of the run in the actual results. These findings will be discussed in detail in the next Section.

Internal Sampling

Missing data created several problems in conducting regression analyses. For each regression run all cases containing complete data were included. Any case which did not have complete data, for that run, was dropped from the analyses, bur could be included in other runs if data was complete. This created a situation in which the N for each regression run varied greatly. (See Table 3.)

This procedure was chosen over its only real alternative, which was to establish a sample with complete data on all dependent and independent variables and run only on that sample, because the number of cases with complete data was too small (N = 500). The fact that means, standard deviations and zero-order correlations of variables appearing in different samples arc, for the most part, relatively stable adds credibility to this approach. (See Table 3 and Appendix 5.) So too do similarities in regression analysis outcomes. However, any procedure which includes cases on the basis of available data is subject to some question and should be viewed with certain caution. Given the dilemma of having to choose between two alternatives, the approach taken in this analysis seemed greatly superior. The results of the analyses reinforce this evaluation.

	DEP 1		DEP 2		DEP 3			
					1st Reenlistment		Careerist	
1st Run	Mean	SD	Mean	SD	Mean	SD	Mean	SD
	N=1498		N=1498				N=1490	
DEP	-0.0365	0.9458	-0.0247	0.9522			+0.1205	0.9006
PMOSE	1.9733	0.1613	1.9733	0.1613			1.9785	0.1450
AEL1	1.9453	0.2362	1.9453	0.2362			1.9450	0.2368
ACB1	1.9800	0.0366	1.9800	0.1401			1.9799	0.1405
EERT	118.6481	11.0366	118.6481	11.0366			118.6323	11.0588
Waiver	-0.9519	0.3064	-0.9519	0.3064			-0.9517	0.3072
	N=1003		N=1003		N=1017		N=1532	
DEP	-0.1417	0.9274	-0.0995	0.9193	-0.1258	0.9363	0.0495	0.9057
LATS	-0.4736	0.8812	-0.4736	0.8812	-0.8033	0.5958	-0.5914	0.8067
AFQT	3.2393	0.7996	3.2393	0.7996	3.0334	0.7992	3.2154	0.8029
ACB90	5.7557	1.3400	5.7557	1.3400	5.6735	1.6923	5.8185	1.3652
EERATT	1.1889	0.4063	1.1889	0.4063	1.7089	0.8679	1.3577	0.6374
EERLEAD	1.2597	0.4692	1.2597	0.4692	2.0654	0.9269	1.5069	0.7370
EERDUTY	1.1899	0.4186	1.1899	0.4186	1.6332	0.8367	1.3368	0.6240
NCO	0.5294	0.8488	0.5294	0.8488	-0.1976	0.9808	0.3930	0.9199
	N=1717		N=1717		N=1952		N=3459	
DEP	-0.0050	0.9557	-0.0005	0.9550	-0.0663	0.9929	0.0369	0.9462
REG1	-0.0507	0.5401	-0.0507	0.5401	0.0856	0.4216	0.0176	0.4963
REG2	-0.0215	0.5683	-0.0215	0.5683	0.1875	0.5019	0.0624	0.5363
REG3	0.2650	0.7348	0.2650	0.7348	0.3668	0.5760	0.3276	0.6703
REG4	-0.0547	0.5359	-0.0547	0.5359	0.1117	0.4458	0.0199	0.4986
NDEP	3.2446	1.5898	3.2446	1.5898	1.4872	1.1759	2.6204	0.6648
RAC1	0.2021	0.4297	0.2021	0.5297	0.1532	0.4914	0.1284	0.4837
RAC2	0.7630	0.4520	0.7630	0.4520	0.6793	0.5742	0.6886	0.5801
REL1	0.6045	0.6727	0.6045	0.6727	0.2900	0.8573	0.4597	0.7843
REL2	0.0757	0.5323	0.0757	0.5323	-0.0830	0.6626	-0.0095	0.5975
AEL2	4.7158	1.2039	4.7158	1.2039	4.5267	1.5205	4.7638	1.2326
	N= 850		N= 850		N= 301		N=1214	
DEP	-0.1309	0.9223	-0.0822	0.9241	-0.0708	0.8568	+0.0579	0.9885
PMOSE	1.9776	0.1479	1.9776	0.1479	1.9734	0.1611	1.9679	0.1764
ACB1	1.9859	0.1180	1.9859	0.1180	1.9468	0.2247	1.9802	0.1393
EERT	118.6508	10.7869	118.6508	10.7869	103.5086	20.5462	114.8246	16.1114
Waiver	-0.9600	0.2802	-0.9600	0.2802	-0.8538	0.5214	-0.9044	0.4268
LATS	-0.4565	-.8903	-0.4565	0.8903	-0.7542	0.6578	-0.5568	0.8310
AFQT	3.2588	0.8012	3.2588	0.8012	3.1063	0.7971	3.2216	0.8077
ACB90	5.7494	1.3335	5.7497	1.3335	5.8671	1.5564	5.7908	1.3755
EERATT	1.1876	0.4007	1.1876	0.4007	1.7110	0.8599	1.3287	0.5925
EERLEAD	1.2594	0.4700	1.2594	0.4700	2.0714	0.8873	1.4695	0.6988
EERDUTY	1.1935	0.4320	1.1935	0.4320	1.6179	0.8227	1.3163	0.6006
NCO	0.5365	0.8444	0.5365	0.8444	-0.0698	0.9992	0.4481	0.8943
REG1	-0.0682	0.5427	-0.0682	0.5427	0.0997	0.4510	-0.0198	0.5228
REG2	-0.0294	0.5807	-0.0294	0.5807	0.1628	0.5001	0.0206	0.5601
REG3	0.2506	0.7453	0.2506	0.7453	0.3555	0.5858	0.2932	0.7078
REG4	-0.0706	0.5402	-0.0706	0.5402	0.0997	0.4510	-0.0272	0.5153
NDEP	3.2459	1.5545	3.2459	1.5545	1.5814	1.2265	2.9399	1.5733
RAC1	0.2024	0.4164	0.2024	0.4164	0.1728	0.4726	0.1903	0.4191
RAC2	0.7800	0.4285	0.7800	0.4285	0.7076	0.5363	0.7776	0.4410
REL1	0.6224	0.6617	0.6224	0.6617	0.2525	0.8540	0.5585	0.7169
REL2	0.0741	0.5209	0.0741	0.5209	-0.0598	0.6902	0.0412	0.5537
AEL2	4.7082	1.1727	4.7082	1.1727	4.8571	1.3151	4.6730	1.1801
AEL4					1.9037	0.2956	1.9333	0.2529

	DEP 4			
	N=1151		N=2188	
DEP	0.0043	0.0658	0.0594	0.2365
EERT	103.3948	20.1701	114.7259	15.8844
ACB1	1.8983	0.3023	-0.8985	0.4390
ACB90	5.3675	1.8881	1.3071	0.6001
EERLEAD	2.0552	0.9333	3.1650	0.7110
AFQT	3.0460	0.7894	1.4570	0.6968
LATS	-0.7967	0.6046	5.5430	1.4924
AEL2	4.4639	1.4880	0.7692	0.4477
RAC2	0.7411	0.4871	4.5941	1.3768
RAC1	0.1911	0.4472	0.0443	0.5652
PMOSE	1.9540	0.2097	1.9698	0.1711

RESULTS

Regression Analysis - FY 1973 Sample

In general, regression analyses resulted in a relatively low proportion of explained variance. However, when interpreted in the light of data problems and the lack of variance in criteria variables, these results provide substantial insight into performance differences among reenlistees.

In this Section the results of regression analyses attempting to find variables which are the best predictors of criteria representing success in the Army are described and discussed. Since the greatest emphasis on the quality of reenlistees occurs at the time of the first reenlistment, results concerning this group will be considered first. However, severe data problems restricted the number of analyses which could be performed on these individuals to only the PMOSE criterion. The remaining analyses, for all criterion variables, were performed using Army career (second or subsequent reenlistment) reenlistees.

Primary MOS Score: Regression analyses on PMOS score (criterion) were performed using current standards, new standards, demographics, and combined variables as predictors.*

For first-term reenlistees regression analyses were performed to test the predictability of PMOS score (standardized for career group) for the new reenlistment standards, the demographic variables and combined variables. Tables 4 - 7

---

* First-term reenlistees had only 8 cases in this run and were not included. This is probably due to delays in data on early PMOS scores into permanent records. After entering active duty it may be 18 months before the first PMOS test is taken. From that point it may require 18 or more months to get the results entered in the individual's records. In fact, it seems that only after reenlistment are serious efforts made to complete 201 files. Because of these conditions most of our first-term reenlistees did not have pre-reenlistment PMOS scores.

Table 4: Regression Analysis of New Predictors on PMOSE for First Reenlistment

DEPENDENT VARIABLE: PMOSE

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.33895					
R Square	0.11489	Regression	6.	102.33660	17.05610	
Adjusted R Square	0.11051	Residual	1010.	788.42816	0.78062	21.84937 (p<.01)
Standard Error of the Estimate for the Regression Equation*	0.88353					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERATT	- 0.09721	- 0.09011	0.06005	2.620	N.S.	0.23711	0.05622	0.05622
ACB90	0.07456	0.13475	0.02097	12.642	<.01	0.30903	0.09550	0.03928
EERLEAD	- 0.09939	- 0.09839	0.04997	3.956	<.05	0.32081	0.10292	0.00742
AFQT	0.10451	0.08920	0.04483	5.435	<.025	0.33076	0.10940	0.00648
LATS	0.10566	0.06724	0.04773	4.901	<.05	0.33720	0.11371	0.00430
EERDUTY	- 0.07327	- 0.06547	0.06316	1.346	N.S.	0.33895	0.11489	0.00118
(Constant)	- 0.28985							

* In subsequent tables this will be referred to as the Standard Error

Table 5. Regression Analysis of Demographic Predictors on PMOSE for First Reenlistment

DEPENDENT VARIABLE: PMOSE

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.23555	Regression	9.	106.72349	11.85817	12.67566 (p<.01)
R Square	0.05548	Residual	1942.	1816.75459	0.93551	
Adjusted R Square	0.05160					
Standard Error	0.96722					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
AEL2	0.11044	0.16911	0.01446	58.318	<.01	0.16804	0.02824	0.02824
RAC2	0.22009	0.12728	0.03925	31.442	<.01	0.21704	0.04710	0.01887
RAC1	- 0.17520	- 0.08671	0.04645	14.223	<.01	0.22997	0.05289	0.00578
NDEP	0.01922	0.02276	0.01873	1.053	N.S.	0.23126	0.05348	0.00059
REL1	0.04826	0.04167	0.03048	2.507	N.S.	0.23236	0.05399	0.00051
REL2	- 0.05362	- 0.03578	0.03912	1.879	N.S.	0.23402	0.05476	0.00077
REG4	- 0.05436	- 0.02440	0.05149	1.115	N.S.	0.23500	0.05523	0.00046
REG1	0.03332	0.01415	0.05371	0.385	N.S.	0.23536	0.05539	0.00017
REG3	- 0.01689	- 0.00980	0.03891	0.188	N.S.	0.23555	0.05548	0.00009
(Constant)	- 0.72677							

Table 6: Regression Analysis of Combined Predictors on PMOSE for First Reenlistment

DEPENDENT VARIABLE: PMOSE

Multiple R	0.34137	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.11653	Regression	22.	25.66344	1.16652	1.66681 (N.S.)
Adjusted R Square	0.05004	Residual	278.	194.55922	0.69985	
Standard Error	0.83657					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERDUTY	- 0.18311	- 0.17583	0.13634	1.804	N.S.	0.23709	0.05621	0.05621
PMOSE	+ 0.69730	+ 0.13112	0.31384	4.937	<.05	0.27635	0.07637	0.02016
AFQT	+ 0.07528	+ 0.07004	0.08261	0.830	N.S.	0.30096	0.09057	0.01421
LATS	+ 0.09551	+ 0.07332	0.07769	1.511	N.S.	0.31056	0.09645	0.00587
ACB1	+ 0.33122	+ 0.08687	0.29897	1.227	N.S.	0.31746	0.10078	0.00433
WAIVER	- 0.11083	- 0.06745	0.10115	1.200	N.S.	0.32268	0.10412	0.00334
REG2	+ 0.09916	+ 0.05787	0.10349	0.918	N.S.	0.32667	0.10671	0.00259
RAC1	- 0.13703	- 0.07559	0.12639	1.175	N.S.	0.32970	0.10870	0.00199
AEL1	+ 0.25204	+ 0.08695	0.24008	1.102	N.S.	0.33150	0.10989	0.00119
AEL2	- 0.03618	- 0.05553	0.05237	0.477	N.S.	0.33340	0.11115	0.00126
REG4	- 0.07209	- 0.03795	0.11651	0.383	N.S.	0.33570	0.11227	0.00112
REL2	- 0.04485	- 0.03613	0.08881	0.255	N.S.	0.33647	0.11321	0.00094
EERLEAD	- 0.04792	- 0.04963	0.10726	0.200	N.S.	0.33794	0.11421	0.00099
RAC2	- 0.04660	- 0.02917	0.10449	0.199	N.S.	0.33891	0.11486	0.00065
NCO	+ 0.02049	+ 0.02390	0.05060	0.164	N.S.	0.33956	0.11530	0.00044
REG1	- 0.04213	- 0.02218	0.11509	0.134	N.S.	0.34021	0.11574	0.00044
REG3	+ 0.02492	+ 0.01704	0.08759	0.081	N.S.	0.34065	0.11604	0.00030
ACB90	- 0.01338	- 0.02430	0.05315	0.063	N.S.	0.34083	0.11616	0.00013
EERATT	+ 0.02747	+ 0.02757	0.12394	0.049	N.S.	0.34100	0.11628	0.00011
EERT	+ 0.00092	+ 0.02195	0.00520	0.031	N.S.	0.34117	0.11640	0.00012
NDEP	+ 0.00611	+ 0.00875	0.04126	0.022	N.S.	0.34129	0.11648	0.00008
REL1	+ 0.00926	+ 0.00923	0.06978	0.018	N.S.	0.34137	0.11653	0.00006
(Constant)	- 2.29013							

show the results of regression runs.* A multiple R of .34 is achieved on the combined run using all dependent variables. (See Table 6.) This accounts for about 11.6% of the variance. However, the F for the final regression equation is not significant and only one of the predictor variables, PMOS, achieves a significant B.**

When analyzed independently the new standards achieve almost identical explanatory power (11.4%). (See Table 4.) Among new standards all but EER/Attitude and EER/Duty performance were statistically significant, although EER/Attitude, the first variable to enter, was so high in relationship to the value of B that it did not produce a significant F.

Demographics are poorer predictors of post-reenlistment success on PMOS tests than other predictors (Table 5). Alone, they produce an R of only .23 and account for 5.5% of the variance. One interesting outcome, however, is the ability of Whites (RAC2) to score higher on PMOS tests than Blacks (RAC1).

Table 7 presents a correlation matrix of all variables used in Tables 3-6.***

---

* Figure 2, p. 39, provides a key to abbreviations used on Tables. This procedure was used because of the length and complexity of some variable names.

** Because this regression run represents, substantively, one of the most important areas of these analyses and because PMOS was the best of three criterion variables, an additional analysis, using hierarchical inclusion of variables was performed. In this new run, current standards were entered first, followed by new standards and, finally, demographics. The results of this analysis were almost identical to those reported in Table 7. The R^2 was .116 and the only individual significant variable was PMOS.

*** The combined run was used to create this matrix. Matrices for individual runs are contained in Appendix 5. They are in the same order and carry the same title as the text tables. Generally, there is little difference between the correlation coefficients produced on the different samples. The independent runs, of new standards and demographics separately, produce some higher coefficients, although not statistically significant differences. There may be isolated exceptions. Because the results are so similar, the procedure of reproducing only the combined run matrix in the text will be followed throughout the section.

Figure 2: Abbreviations and Codes Used in the Regressions.

DEP 1 - Dependent Variable 1 -- Time to Grade standardized

DEP 2 - Dependent Variable 2 -- Time to Promotion standardized

DEP 3 - Dependent Variable 3 -- PMOSE Score standardized

PMOSE - PMOSE Score
- in the 1973 regression we used most recent score, 1973 or 1972 or average of the two.
- for the estimation on 1975 data, we used most recent, 1975 or 1974 or average of the two.

1 >70
2 <70

AEL 1 - Academic Education Level 1

0 <8th grade
1 Between 8th grade and 12th grade included but no HS graduate
2 High School graduate or above

ACB 1 - ACB Scores

2 3 or more scores >90
1 All others

EERT - EER total score
- most recent 1973, 1972, or average of the two for 1973 regressions
- most recent 1975, 1974, or average of the two for 1975 estimations

WAIVER - Waivers

1 has a Waiver
-1 has no Waiver

LATS - Defense Language Aptitude Score

1 has a score
-1 has none

AFQT - AFQT Score

1-5 (recorded: 5 to 1)

ACB90 - ACB Scores

Number of 90 or above scores (range 0-7)

EERATT - EER Attitude evaluation (range 1 to 6)
- most recent 1973 or 1972 or average for 1973 regressions
- most recent 1975 or 1974 or average for 1975 estimations

Figure 2: (continued); Abbreviations and Codes Used in the Regressions.

EERLEAD - EER Leadership evaluation (range 1 to 6)
- most recent 1973 or 1972 or average for 1973 regressions
- most recent 1974 or 1974 or average for 1975 estimations

EERDUTY - EER Duty Performance valuation (range 1 to 6)
- most recent 1973 or 1972 or average for 1973 regressions
- most recent 1975 or 1974 or average for 1975 estimations

NOC - NCO Development Course
- most recent 1973 or 1972 or average for 1973 regressions
- most recent 1974 or 1974 or average for 1975 estimations

1	Yes
-1	No

AEL 2 - Academic Education Level 2

0	0-8th grade
1	9th grade
2	10th grade
3	11th, 12th grades
4	GED
5	High School Graduate
6	One year college completed
7	Two years college completed
8	Three years college completed
9	Four years and up

RAC1 - Race

1	Black
0	White
-1	Other

RAC2 - Race

0	Black
1	White
-1	Other

REL1 - Religion

1	Protestant and Related
0	Catholic
-1	Other

Figure 2 (continued): Abbreviations and Codes Used in the Regressions.

REL2 - Religion

0	Protestant and Related
1	Catholic
-1	Other

REG1 - Region*

1	Northeast
0	NorthCentral
0	South
0	West
-1	Out of State

REG2 - Region

0	Northeast
1	North Central
0	South
0	West
-1	Out of State

REG3 - Region

0	Northeast
0	North Central
1	South
0	West
-1	Out of State

REG4 - Region

0	Northeast
0	North Central
0	South
1	West
-1	Out of State

* Regions and geographic divisions of the United States from U.S. Department of Commerce, Social and Economic Statistics Administration, Bureau of the Census.

Table 7: Correlation Matrix for the Regression Analysis of the Combined Predictors on PMOSE for First Reenlistment

	AFL1	ACB1	EERT	NAIVER	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUT	NCO	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2	AEL2	PMOSE
ACB1	.023																					
EERT	.081	-.024																				
NAIVER	-.211	.067	-.092																			
LATS	.088	.089	.113	-.066																		
AFQT	.199	.311	.195	-.086	.179																	
ACB90	.204	.647	.158	-.066	.136	.613																
EERATT	-.143	.015	-.816	.109	-.098	-.210	-.133															
EERLEAD	-.005	.053	-.820	.042	-.133	-.176	-.066	.768														
EERDUTY	-.076	.043	-.835	.037	-.097	-.220	-.136	.859	.792													
NCO	.034	.013	.152	-.083	-.004	.085	.075	-.179	-.154	-.146												
REG1	.072	-.046	.119	-.005	.052	-.002	-.019	-.153	-.114	-.167	.075											
REG2	-.029	.077	.050	.067	-.000	.124	.071	-.065	.004	-.023	.070	.179										
REG3	.083	-.059	.019	-.040	.101	-.103	-.061	-.004	.028	-.039	-.020	.080	-.005									
REG4	.022	.052	.067	.023	.052	.082	.014	-.067	-.043	-.050	.163	.230	.179	.080								
NDEP	.100	.004	.003	.086	-.021	-.002	.067	.027	.005	-.000	-.008	-.003	-.117	-.024	-.111							
RAC1	.191	-.196	-.017	-.130	-.051	-.235	-.268	-.028	-.045	-.005	-.059	.013	-.162	.175	-.144	.073						
RAC2	.074	.203	.102	-.109	.072	.237	.265	-.007	-.026	-.054	.036	.080	.178	-.050	.135	-.050	-.326					
REL1	.070	.035	-.011	.126	-.016	-.049	.015	.016	.053	.017	-.003	-.005	-.049	.013	-.031	.120	.123	-.042				
REL2	.119	.065	-.025	.006	.150	-.001	-.007	.016	.012	.051	.052	.073	.009	-.145	-.056	.006	-.121	.088	.484			
AEL2	.659	.031	.161	-.174	.072	.228	.170	-.188	-.108	-.155	-.025	-.004	-.061	.036	-.015	-.014	.206	-.078	-.021	.031		
PMOSE	.156	.053	.080	-.033	.062	.126	.119	-.068	-.045	-.089	-.053	.037	-.029	.065	.037	-.040	.061	.141	-.024	.016	.061	
DEP3	.093	.102	.219	-.077	.124	.183	.158	-.215	-.199	-.237	.061	.022	.064	.024	.011	-.001	-.069	.077	-.028	-.008	.055	.163

The highest correlation with PMOS is attained for the EER-associated variables, all having around .2.* The variables in the factor are also highly correlated with each other. A second factor is the ability to do well on written tests (AFQT and ACB's over 90) which show similar correlation to the criterion and high intercorrelations. A somewhat surprising result of the correlation (and regression) analysis is the failure of PMOSE (independent 1972/73 score) to correlate with PMOS (dependent - 1974/75 score). This is probably the result of the use of PMOSE as it is applied in the current reenlistment standards, i.e., as a dichotomous variable with only pass and fail values.** This greatly reduces variance, especially on our samples of reenlistees who were selected on this basis.

Overall the r's are small and seem to show no pattern of relationships. This is reflected in the regression analyses. Low variance among many variables is probably the most reasonable explanation for this outcome. Lack of real meaning in the criterion variable is another, especially since its best predictor is an earlier version of itself. (See **, this page.)

---

* EERT is scored so that a higher score is better. The individual components of the EER (Duty, Attitude, and Leadership) are scored so that a low score is better, thus the reversal of signs.

** Because the absolute PMOS score did not relate to the new standards applied in the study it was not included in initial runs. However, a separate regression run was made with the added variable of absolute PMOS score. The results of this run show that this score is by far the best predictor of post-reenlistment PMOS results. The r equals .61 for first-term reenlistees and the resultant total R^2 from the regression analysis is .237 as compared to .116 without using PMOS scores. Thus, the best predictor of most recent PMOS scores is previous scores, but not in the dichotomous form currently used by the Army.

The results for careerists are presented in Tables 8-12. They are similar to findings for first-term reenlistees except that the overall R^2 is somewhat higher for the combined variables run (Table 11). The correlation of independent variables to PMOS also shows a similar pattern, with EER-related scores showing somewhat higher correlation and AFQT/ACB scores a somewhat lower relationship with PMOS and each other.

The analysis of careerists scores allowed the inclusion of a run using only current standards (Table 8). In this run EER total score (EERT) and PMOSE were the only significant predictors. These two variables correlated with PMOS and each other at about the same level, .28, .23, and .25 (Table 12).

The total explained variance for this run was .097. This compares to the .113 percent of variance explained using new standards (Table 9). In the new standards analysis EER Subscores (EERDUTY and EERLEAD) replace EERT as major predictors and AFQT replaces PMOSE. These sets of variables are also highly correlated (Table 12).

There are no major differences between first reenlistment and career reenlistment results. Both account for about 11% of the variance and EERDUTY is the best predictor in each.

Demographic variables again turn out to be the poorest predictors, accounting for only 3% of the variance. Race and education level repeat as significant predictors, and being Catholic (REL2) is also a significant, although negative, predictor of success on the PMOS test. The poor success of demographic variables in predicting post-reenlistment success for both first-term and career reenlistees is somewhat of a surprise, because this type of variable is often an important factor in predicting individual performance. Dispite the fact that race is a statistically significant predictor it may be considered a positive outcome that this variable accounts for so little of the differences in performance. The correlation coefficient

Table 8: Regression Analysis of Current Predictors on PMOSE for Careerists

DEPENDENT VARIABLE: PMOSE

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.31158					
R Square	0.09708	Regression	5.	117.23923	23.44785	31.91277 <.01
Adjusted R Square	0.09465	Residual	1484.	1090.36597	0.73475	
Standard Error	0.85717					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERT	+0.01830	+0.22477	0.00205	79.883	<.01	0.25866	0.06690	0.06690
PMOSE	+1.03059	+0.16595	0.15679	43.206	<.01	0.30714	0.09434	0.02743
WAIVER	-0.10407	-0.03550	0.07290	2.038	N.S.	0.30946	0.09577	0.00143
ACB1	+0.19508	+0.03044	0.15858	1.513	N.S.	0.31097	0.09670	0.00094
AEL1	-0.07417	-0.01950	0.09384	0.625	N.S.	0.31158	0.09708	0.00038
(Constant)	-4.43104							

Table 9: Regression Analysis of New Predictors on PMOSE for Careerists

DEPENDENT VARIABLE: PMOSE

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.33640					
R Square	0.11316	Regression	7.	142.12934	20.30419	27.78100 (p<.01)
Adjusted R Square	0.10967	Residual	1524.	1113.83987	0.73087	
Standard Error	0.85491					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERDUTY	- 0.24931	- 0.17177	0.06687	13.899	<.01	0.30117	0.09070	0.09070
AFQT	0.09648	0.08552	0.03014	10.249	<.01	0.32238	0.10393	0.01322
EERLEAD	- 0.14776	- 0.12024	0.05512	7.185	<.01	0.33075	0.10940	0.00547
ACB90	0.04168	0.06283	0.01746	5.696	<.01	0.33569	0.11269	0.00329
EERATT	- 0.04555	- 0.03205	0.05937	0.588	N.S.	0.33614	0.11299	0.00030
NCO	- 0.01135	- 0.01152	0.02430	0.218	N.S.	0.33632	0.11311	0.00012
LATS	0.00851	0.00757	0.02765	0.095	N.S.	0.33640	0.11316	0.00006
(Constant)	0.12406							

Table 10: Regression Analysis of Demographic Predictors on PMOSE for Careerists

DEPENDENT VARIABLE: PMOSE

Multiple R	0.17324	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.03001	Regression	8.	92.90862	11.61358	13.34305 (p<.01)
Adjusted R Square	0.02804	Residual	3450.	3002.82580	0.87038	
Standard Error	0.93294					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
RAC2	0.19634	0.12038	0.02768	50.309	<.01	0.12664	0.01604	0.01604
AEL2	0.07965	0.10377	0.01292	37.992	<.01	0.16273	0.02648	0.01044
REL2	- 0.06734	- 0.04253	0.02935	5.264	<.01	0.16690	0.02786	0.00138
RAC1	- 0.06090	- 0.03113	0.03354	3.296	N.S.	0.17001	0.02890	0.00105
REG1	- 0.05132	- 0.02692	0.03655	1.971	N.S.	0.17101	0.02924	0.00034
REG2	0.05103	0.02892	0.03323	2.358	N.S.	0.17276	0.02985	0.00060
REG3	- 0.01472	- 0.01043	0.02571	0.328	N.S.	0.17298	0.02992	0.00008
REL1	0.01272	0.01055	0.02255	0.318	N.S.	0.17324	0.03001	0.00009
(Constant)	- 0.47388							

Table 11: Regression Analysis of Combined Predictors on PMOSE for Careerists

DEPENDENT VARIABLE: PMOSE

Multiple R	0.37517	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.14075	Regression	20.	138.15161	6.90758	9.77101 <.01
Adjusted R Square	0.12708	Residual	1193.	843.38710	0.70695	
Standard Error	0.84080					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERDUTY	- 0.22147	- 0.14787	0.07561	8.580	<.01	0.29540	0.08726	0.08726
PMOSE	+ 0.73634	+ 0.14440	0.14305	26.495	<.01	0.33428	0.11174	0.02448
AFQT	+ 0.05023	+ 0.04511	0.03533	2.021	N.S.	0.34864	0.12155	0.00981
EERT	+ 0.00690	+ 0.12364	0.00263	6.903	<.01	0.35572	0.12653	0.00499
ACB90	+ 0.03899	+ 0.05962	0.02130	3.351	N.S.	0.36116	0.13044	0.00390
WAIVER	- 0.09766	- 0.04633	0.05811	2.825	N.S.	0.36393	0.13245	0.00201
AEL1	- 0.28938	- 0.08137	0.11815	5.999	<.025	0.36631	0.13418	0.00174
AEL2	+ 0.05340	+ 0.07005	0.02601	4.216	<.05	0.36997	0.13688	0.00270
RAC2	+ 0.08001	+ 0.03923	0.08628	0.860	N.S.	0.37172	0.13817	0.00129
REG3	+ 0.03459	+ 0.02722	0.03934	0.773	N.S.	0.37330	0.13935	0.00118
REG2	+ 0.04182	+ 0.02604	0.05131	0.664	N.S.	0.37391	0.13981	0.00046
REL2	- 0.03477	- 0.02140	0.04649	0.560	N.S.	0.37449	0.14024	0.00044
NCO	+ 0.01226	+ 0.01219	0.02762	0.197	N.S.	0.37473	0.14042	0.00018
ACB1	- 0.07996	- 0.01238	0.19418	0.170	N.S.	0.37490	0.14055	0.00012
LATS	+ 0.01082	+ 0.01000	0.03019	0.128	N.S.	0.37502	0.14064	0.00009
NDEP	+ 0.00374	+ 0.00654	0.01577	0.056	N.S.	0.37507	0.14068	0.00004
REL1	- 0.00695	- 0.00554	0.03641	0.036	N.S.	0.37511	0.14071	0.00003
REG1	- 0.00949	- 0.00551	0.05623	0.028	N.S.	0.37514	0.14073	0.00002
EERATT	- 0.00840	- 0.00553	0.07159	0.014	N.S.	0.37515	0.14074	0.00001
RAC1	- 0.01005	- 0.00468	0.08878	0.013	N.S.	0.37517	0.14075	0.00001
(Constant)	- 1.96540							

for careerists are below .1 (Table 12), while those for first-term reenlistees are only slightly higher (Table 7).

Using all predictors (Table 11) increases total explained variance to 14%. This is somewhat higher than for first-term reenlistees. Again, EER/DUTY, PMOSE, and EER/TOTAL are the best and most significant predictors.*

The results of all efforts to predict the criterion performance variable, PMOS, show generally low order relationships and small, though statistically significant, proportions of explained variance. The best single predictor of post-reenlistment PMOS scores are pre-reenlistment scores for both careerists** and first-term reenlistees. This is certainly the most expected, if not the most desirable result, since this outcome provides no independent measure of what may be the best of the currently available performance indicators. That is, it would be helpful if other success indicators were highly correlated with PMOS score.

In the following analyses two additional success criteria are examined: Time to Grade and Time to Promotion. Because of missing data regression runs were not possible for first-term reenlistees. For this reason the following reports on runs for careerists only.

---

* Another regression run using the hierarchical model was completed for careerists. Again, the results were almost identical to those obtained using the original regression approach.

** The additional regression analysis using actual PMOS test scores was also run for careerists. The simple correlation between PMOS (FY 74/75) and PMOS (FY 72/73) is .60 and the explained variance on the combined regression run is .37, almost three times the results obtained without this variable.

Table 12: Correlation Matrix for the Regression Analysis of Combined Predictors on PMOSE for Careerists

	AFL1	ACB1	EERT	WAIVER	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY	NCO	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2	AEL2	PMOSE
ACB1	-.014																					
EERT	.068	.036																				
WAIVER	.013	-.079	-.079																			
LATS	.023	.047	.071	-.073																		
AFQT	.052	.034	.088	-.081	.178																	
ACB90	.019	.422	.011	-.042	.064	.384																
EERATT	-.093	-.036	-.075	.156	-.077	-.067	.008															
EERLEAD	-.088	-.027	-.782	.156	-.097	-.098	-.006	.767														
EERDUTY	-.051	-.039	-.788	.094	-.081	-.065	-.006	.785	.810													
NCO	.027	-.021	.123	-.086	.081	.035	-.005	-.168	-.135	-.131												
REG1	.015	-.028	-.083	.031	-.029	.001	.016	.070	.098	.066	.008											
REG2	.004	-.016	-.062	.054	-.037	.046	.043	.084	.085	.040	-.033	.503										
REG3	-.006	.034	-.075	.038	-.064	-.128	.003	.058	.093	.101	-.007	.412	.355									
REG4	-.039	-.030	-.079	.027	-.045	.050	.013	.082	.088	.094	-.018	.543	.510	.424								
NDEP	.031	.006	.178	-.063	.051	.025	-.054	-.157	-.191	-.139	.061	-.054	-.066	-.015	-.050							
RAC1	-.036	-.063	.043	.037	-.081	-.283	-.237	-.036	-.031	-.017	-.001	.013	.004	.101	-.045	.021						
RAC2	.059	.170	-.003	-.018	.076	.337	.316	.004	-.018	-.029	-.019	.017	.029	-.066	-.005	-.019	-.743					
REL1	.069	.020	.095	-.024	.091	-.049	-.075	-.044	-.067	-.060	.003	-.065	-.020	.060	-.057	.067	.151	-.079				
REL2	.090	-.032	.057	-.038	.075	-.009	-.062	-.039	-.050	-.043	.039	-.037	-.027	-.075	-.086	.070	-.091	.041	.278			
AEL2	.565	.016	.081	-.007	.140	.208	.084	-.108	-.092	-.074	-.004	.031	.018	-.008	.034	-.019	.001	-.012	.037	.055		
PMOSE	-.030	.008	.253	-.069	.041	.079	.040	-.207	-.262	-.262	.034	-.034	-.018	-.024	-.037	.049	-.018	.035	.025	.039	.009	
DEP3	-.026	.045	.287	-.087	.060	.128	.103	-.252	-.269	-.295	.054	-.004	.020	-.004	.001	.051	-.050	.078	.033	-.008	.061	.228

Time to Grade

Tables 13 through 16 show the amount of variance accounted for by the current standards for reenlistment, the new standards generated from available data, demographic variables, and combined variables from the three previous runs, respectively.* On the first three runs the highest total explained variance is 3.7%, for the new standards. The single best predictor is number of dependents.** In this case the larger the number of dependents the slower was the promotion time.

One result of some special interest is that Black and White enlisted personnel have almost the same promotion rate, with Blacks very slightly faster than Whites. (Table 15)

The new standards are somewhat better than the current standards, but the total explained variance is so small (3.7%) that even the fact that the overall regression is statistically significant does not make the difference important in terms of possible modification in the system.

When all independent variables are included in the regression (Table 16) the proportion of explained variance increases to 8%, still very small. The best single predictor remains number of dependents, followed by the number of ACB scores over 90. Only PMOSE score among current criteria is statistically significant.

Overall, these results point to the absence of variance in promotion rates as well as they explain those differences which do exist. The zero order correlation matrices (Appendix V) reflect this problem with generally low level values.

---

* Time to Grade is a standardized score as represented in the regression analyses. The further an individual is above the mean, the slower is his promotion time. Thus, a positive value indicates slower promotion. Time to Promotion is calculated in the same way.

** This somewhat unexpected appearance of number of dependents as the first variable in the equation is partially the result of the regression model used in these analyses. This model allowed variables to be selected by using statistical criteria rather than preordering variables.

Table 13: Regression Analysis of Current Predictors on Time to Grade for Careerists

DEPENDENT VARIABLE: Time to Grade

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.10814					
R Square	0.01169	Regression	5.	15.65966	3.13193	3.53101 (N.S.)
Adjusted R Square	0.00905	Residual	1492.	1323.37244	0.88698	
Standard Error	0.94180					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
PMOSE	- 0.39471	- 0.06730	0.15261	6.690	<.01	0.07647	0.00585	0.00585
ACB1	- 0.31447	- 0.04660	0.17423	3.258	N.S.	0.09121	0.00832	0.00247
Waiver	0.12849	0.04163	0.07984	2.590	N.S.	0.10097	0.01020	0.00188
EERT	- 0.00315	- 0.03675	0.00223	1.998	N.S.	0.10731	0.01151	0.00132
AEL1	0.05372	0.01342	0.10310	0.272	N.S.	0.10814	0.01169	0.00018
(Constant)	1.75649							

Table 14: Regression Analysis of New Predictors on Time to Grade for Careerists

DEPENDENT VARIABLE: Time to Grade

Multiple R	0.19335	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.03739	Regression	6.	32.21616	5.36936	6.44710 (p<.025)
Adjusted R Square	0.03256	Residual	996.	829.50147	0.83283	
Standard Error	0.91260					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
ACB90	- 0.11978	- 0.17308	0.02263	28.096	<.01	0.15148	0.02295	0.02295
EERDUTY	0.17075	0.07707	0.11609	2.163	N.S.	0.18547	0.03440	0.01145
AFQT	0.05531	0.04769	0.03836	2.080	N.S.	0.19138	0.03663	0.00223
EERATT	0.04753	0.02083	0.10001	0.226	N.S.	0.19236	0.03700	0.00037
EERLEAD	0.04490	0.02272	0.09844	0.208	N.S.	0.19288	0.03720	0.00020
LATS	0.01452	0.01380	0.03330	0.190	N.S.	0.19335	0.03739	0.00018
(Constant)	0.05918							

Table 15: Regression Analysis of Demographic Predictors on Time to Grade for Careerists

DEPENDENT VARIABLE: Time to Grade

Multiple R	0.19108	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.03651	Regression	10.	57.22097	5.72210	6.46485 (p<.025)
Adjusted R Square	0.03143	Residual	1706.	1509.99535	0.88511	
Standard Error	0.94080					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
NDEP	0.08566	0.14250	0.01437	35.529	<.01	0.15097	0.02279	0.02279
REL2	0.09915	0.05522	0.04400	5.078	<.025	0.16340	0.02670	0.00391
AEL2	- 0.04697	- 0.05918	0.01890	6.176	<.025	0.17354	0.03012	0.00342
RAC1	- 0.22252	- 0.10006	0.07949	7.836	<.01	0.18002	0.03241	0.00229
RAC2	- 0.14717	- 0.06960	0.07441	3.912	<.05	0.18653	0.03479	0.00239
REG2	- 0.07221	- 0.04294	0.05217	1.916	N.S.	0.19048	0.03628	0.00149
REG1	0.02243	0.01267	0.05663	0.157	N.S.	0.19068	0.03636	0.00008
REG3	- 0.01545	- 0.01188	0.03731	0.172	N.S.	0.19089	0.03644	0.00008
REL1	0.01183	0.00833	0.03484	0.115	N.S.	0.19105	0.03650	0.00006
REG4	0.00766	0.00430	0.05766	0.018	N.S.	0.19108	0.03651	0.00001
(Constant)	0.08527							

Table 16: Regression Analysis of Combined Predictors on Time to Grade for Careerists

DEPENDENT VARIABLE: Time to Grade

Multiple R	0.28398	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.08065	Regression	19.	58.24493	3.06552	3.83195 (N.S.)
Adjusted R Square	0.06073	Residual	830.	663.99102	0.79999	
Standard Error	0.89442					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
NDEP	0.08247	0.13899	0.02000	16.998	<.01	0.15959	0.02547	0.02547
ACB90	- 0.11161	- 0.16136	0.02632	17.988	<.01	0.20545	0.04221	0.01674
EERDUTY	0.14850	0.06955	0.12587	1.392	N.S.	0.23155	0.05362	0.01140
RAC1	- 0.38706	- 0.17474	0.14472	7.153	<.01	0.24938	0.06219	0.00857
PMOSE	- 0.45279	- 0.07261	0.21148	4.584	<.05	0.25890	0.06703	0.00484
RAC2	- 0.25074	- 0.11648	0.14152	3.139	N.S.	0.26515	0.07030	0.00327
REG1	- 0.08338	- 0.04906	0.07500	1.236	N.S.	0.26864	0.07217	0.00186
AFQT	0.05618	0.04881	0.04338	1.678	N.S.	0.27138	0.07365	0.00148
Waiver	0.12421	0.03773	0.11166	1.237	N.S.	0.27384	0.07499	0.00134
REL2	0.07371	0.04163	0.06129	1.446	N.S.	0.27657	0.07649	0.00150
AEL2	- 0.02739	- 0.03483	0.02707	1.024	N.S.	0.27918	0.07794	0.00145
EERLEAD	0.08643	0.04405	0.11261	0.589	N.S.	0.28040	0.07862	0.00068
NCO	0.02677	0.02451	0.03686	0.527	N.S.	0.28137	0.07917	0.00055
ACB1	0.17751	0.02272	0.28282	0.394	N.S.	0.28217	0.07962	0.00045
EERT	0.00235	0.02746	0.00413	0.324	N.S.	0.28266	0.07990	0.00028
REG4	0.04427	0.02593	0.07635	0.336	N.S.	0.28309	0.08014	0.00024
REG3	- 0.02346	- 0.01895	0.05119	0.210	N.S.	0.28355	0.08040	0.00026
EERATT	0.05025	0.02183	0.11599	0.188	N.S.	0.28391	0.08060	0.00020
REL1	- 0.00947	- 0.00679	0.04798	0.039	N.S.	0.28398	0.08065	0.00004
(Constant)	0.49005							

Time to Promotion

The same four runs for careerists were made for Time to Promotion as for Time to Grade. Tables 17 through 20 show results which were even lower than previous outcomes. None of the current or new criteria accounted for 1% of the total explained variance. Demographics were the best predictors and number of dependents was again the most effective. The combined variables run was very similar to the results of the Time to Grade run also (Tables 16 and 20). More than anything else these results show the similarity of the Time to Grade and Time to Promotion variables. The zero-order correlation between these criteria variables was .81 for careerists and .94 for first-term reenlistees.

Combined Criteria Variables

A final effort was made to identify post-reenlistment successes by combining dependent variables (a mean of Z-scores) and then categorizing individuals into three groups: (1) those who average below 1 standard deviation from the mean (poor soldiers); (2) those who are from -1 to +1 standard deviation from the mean (average soldiers); and (3) those who are more than 1 standard deviation above the mean (super soldiers). Regressions were then run using the statistically significant predictors from previous runs for careerists and first-term reenlistees. The results of these runs are presented in Tables 22 and 23. This attempt to identify super-soldiers and poor-soldiers was generally not successful. The primary problem is lack of variance in the criterion variable. Although the means are close to 0, as they should be, the lack of a substantial correlation between PMOS and the Grade criteria means that most subjects fall into the middle category of average soldiers (Table 21). This leaves little variance to predict. A successful use of this strategy requires a different set of criterion variables, particularly the promotion variables.

Table 17: Regression Analysis of Current Predictors on Time to Promotion for Careerists

DEPENDENT VARIABLE: Time to Promotion

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.09450					
R Square	0.00893	Regression	5.	12.12053	2.42411	2.68892 (N.S.)
Adjusted R Square	0.00628	Residual	1492.	1345.06504	0.90152	
Standard Error	0.94948					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
ACB1	- 0.46906	- 0.06904	0.17565	7.131	<.01	0.07330	0.00537	0.00537
PMOSE	- 0.24782	- 0.04197	0.15386	2.594	N.S.	0.08613	0.00742	0.00205
Waiver	0.11513	0.03705	0.08050	2.046	N.S.	0.09390	0.00882	0.00140
EERT	- 0.00078	- 0.00906	0.00225	0.121	N.S.	0.09432	0.00890	0.00008
AEL1	0.02342	0.00581	0.10394	0.051	N.S.	0.09450	0.00893	0.00003
(Constant)	1.54984							

Table 18: Regression Analysis of New Predictors on Time to Promotion for Careerists

DEPENDENT VARIABLE: Time to Promotion

Multiple R	0.12440	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.01548	Regression	7.	13.10403	1.87200	2.23439 (N.S.)
Adjusted R Square	0.00955	Residual	995.	833.62536	0.83781	
Standard Error	0.91532					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
ACE90	- 0.06848	- 0.09982	0.02269	9.106	<.01	0.08805	0.00775	0.00775
EERLEAD	0.14035	0.07164	0.09879	2.018	N.S.	0.11534	0.01330	0.00555
LATS	- 0.03986	- 0.03821	0.03348	1.418	N.S.	0.12055	0.01453	0.00123
AFQT	0.03063	0.02664	0.03848	0.634	N.S.	0.12316	0.01517	0.00064
EERATT	- 0.04723	- 0.02088	0.10062	0.220	N.S.	0.12358	0.01527	0.00010
EERDUTY	0.04522	0.02059	0.11651	0.151	N.S.	0.12420	0.01543	0.00016
NCO	- 0.00767	- 0.00709	0.03440	0.050	N.S.	0.12440	0.01548	0.00005
(Constant)	0.00617							

Table 19: Regression Analysis of Demographic Predictors on Time to Promotion for Careerists

DEPENDENT VARIABLE: Time to Promotion

Multiple R	0.15654	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.02450	Regression	10.	38.35036	3.83504	4.28549 (p<.05)
Adjusted R Square	0.01936	Residual	1706.	1526.67855	0.89489	
Standard Error	0.94599					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
NDEP	0.06932	0.11539	0.01445	23.011	<.01	0.11972	0.01433	0.01433
AEL2	- 0.05612	- 0.07075	0.01901	8.719	<.01	0.13826	0.01911	0.00478
RAC1	- 0.21365	- 0.09614	0.07993	7.144	<.01	0.14408	0.02076	0.00165
RAC2	- 0.16658	- 0.07884	0.07482	4.958	<.05	0.15359	0.02359	0.00283
REL2	0.04016	0.02238	0.04424	0.824	N.S.	0.15555	0.02420	0.00061
REG3	- 0.01903	- 0.01464	0.03751	0.257	N.S.	0.15619	0.02439	0.00020
REG1	0.02071	0.01171	0.05694	0.132	N.S.	0.15628	0.02442	0.00003
REG4	- 0.01258	- 0.00706	0.05797	0.047	N.S.	0.15642	0.02447	0.00005
REL1	0.00699	0.00493	0.03504	0.040	N.S.	0.15650	0.02449	0.00002
REG2	- 0.00753	- 0.00448	0.05246	0.021	N.S.	0.15654	0.02450	0.00001
(Constant)	0.20747							

Table 20: Regression Analysis of Combined Predictors on Time to Promotion for Careerists

DEPENDENT VARIABLE: Time to Promotion

Multiple R	0.21663	Analysis of Variance	DF	Sum of Squares	Mean Square	F
R Square	0.04693	Regression	21.	34.02032	1.62002	1.94137 (N.S.)
Adjusted R Square	0.02393	Residual	828.	690.94112	0.83447	
Standard Error	0.91349					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
NDEP	0.06533	0.10990	0.02047	10.190	<.01	0.12011	0.01443	0.01443
ACB90	- 0.05839	- 0.08426	0.02689	4.717	<.05	0.14257	0.02033	0.00590
AEL2	- 0.04948	- 0.06280	0.02787	3.151	N.S.	0.15953	0.02545	0.00512
EERLEAD	0.22558	0.11473	0.11501	3.847	<.05	0.17257	0.02978	0.00433
EERT	0.00802	0.09363	0.00422	3.610	N.S.	0.18435	0.03399	0.00421
RAC1	- 0.26398	- 0.11895	0.14843	3.163	N.S.	0.19233	0.03699	0.00300
RAC2	- 0.17869	- 0.08285	0.14492	1.520	N.S.	0.19660	0.03865	0.00166
REL1	- 0.04527	- 0.03242	0.04919	0.847	N.S.	0.20033	0.04013	0.00148
PMOSE	- 0.23034	- 0.03687	0.21606	1.137	N.S.	0.20388	0.04157	0.00143
LATS	- 0.03608	- 0.03476	0.03660	0.972	N.S.	0.20630	0.04256	0.00099
REG3	- 0.03249	- 0.02621	0.05280	0.379	N.S.	0.20870	0.04356	0.00100
REG2	0.07767	0.04881	0.07193	1.166	N.S.	0.21042	0.04428	0.00072
REG4	- 0.05867	- 0.03430	0.08182	0.514	N.S.	0.21215	0.04501	0.00073
AFQT	0.03118	0.02703	0.04471	0.486	N.S.	0.21364	0.04564	0.00063
Waiver	0.07568	0.02294	0.11407	0.440	N.S.	0.21477	0.04613	0.00048
ACB1	- 0.14109	- 0.01802	0.28933	0.238	N.S.	0.21543	0.04641	0.00028
EERDUTY	0.06239	0.02916	0.12884	0.234	N.S.	0.21582	0.04658	0.00017
EERATT	- 0.04226	- 0.01833	0.11853	0.127	N.S.	0.21619	0.04674	0.00016
REL2	0.01645	0.00927	0.06260	0.069	N.S.	0.21637	0.04682	0.00008
REG1	- 0.01998	- 0.01173	0.08042	0.062	N.S.	0.21653	0.04689	0.00007
NCO	0.00707	0.00646	0.03779	0.035	N.S.	0.21663	0.04693	0.00004
(Constant)	- 0.07452							

Table 21: Correlation Matrix for Criteria Variables

First-Term Reenlistees:

	Time to Grade	Time to Promotion
PMOS	.003 (NS)	.004 (NS)
Time to Grade		.947 ($p<.01$)

Careerists:

	Time to Grade	Time to Promotion
PMOS	.155 ($p<.01$)	.119 ($p<.01$)
Time to Grade		.817 ($p<.01$)

Table 22: Regression Analysis of Statistically Significant Predictors on a Combined Success Criterion for First Reenlistment

DEPENDENT VARIABLE: Combined

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.10308	Regression	10.	0.05290	0.00529	1.22432 (N.S.)
R Square	0.01063	Residual	1140.	4.92538	0.00432	
Adjusted R Square	0.00282					
Standard Error	0.06573					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERLEAD	-0.00645	-0.09156	0.00405	2.535	N.S.	0.07471	0.00558	0.00558
AEL2	0.00211	0.04763	0.00138	2.336	N.S.	0.08771	0.00769	0.00211
RAC1	0.00403	0.02741	0.00529	0.582	N.S.	0.09204	0.00847	0.00078
ACB1	0.01249	0.05739	0.00905	1.905	N.S.	0.09631	0.00928	0.00081
ACB90	-0.00160	-0.04600	0.00163	0.969	N.S.	0.10013	0.01003	0.00075
LATS	0.00194	0.01781	0.00329	0.347	N.S.	0.10194	0.01039	0.00036
EERT	-0.00007	-0.02260	0.00019	0.153	N.S.	0.10257	0.01052	0.00013
AFQT	0.00086	0.01031	0.00301	0.081	N.S.	0.10290	0.01059	0.00007
PMOSE	0.00165	0.00525	0.00939	0.031	N.S.	0.10302	0.01061	0.00003
RAC2	-0.00059	-0.00440	0.00491	0.015	N.S.	0.10308	0.01063	0.00001
(Constant)	-0.00390							

Table 23: Regression Analysis of Statistically Significant Predictors on a Combined Success Criterion for Careerists

DEPENDENT VARIABLE: Combined

		Analysis of Variance	DF	Sum of Squares	Mean Square	F
Multiple R	0.15329					
R Square	0.02350	Regression	10.	2.87327	0.28733	5.23866 <.025
Adjusted R Square	0.01946	Residual	2177.	119.40278	0.05485	
Standard Error	0.23420					

Variable	B	Beta	Standard Error B	F	P	Multiple R	R Square	R Square Change
EERLEAD	-0.02464	-0.07261	0.01290	3.649	N.S.	0.11077	0.01227	0.01227
ACB90	0.01299	0.08197	0.00361	12.949	<.01	0.13355	0.01783	0.00557
AEL2	0.00896	0.05218	0.00374	5.754	<.025	0.14078	0.01982	0.00198
REL2	-0.01388	-0.03319	0.00896	2.399	N.S.	0.14438	0.02085	0.00103
AFQT	-0.01093	-0.03286	0.00771	2.011	N.S.	0.14784	0.02186	0.00101
PMOSE	0.04111	0.02974	0.02960	1.929	N.S.	0.15114	0.02284	0.00099
EERT	0.00044	0.02958	0.00056	0.612	N.S.	0.15259	0.02328	0.00044
RAC2	-0.00594	-0.01125	0.01184	0.252	N.S.	0.15292	0.02339	0.00010
WAIVER	-0.00424	-0.00787	0.01154	0.135	N.S.	0.15312	0.02345	0.00006
EERDUTY	-0.00475	-0.01205	0.01404	0.115	N.S.	0.15329	0.02350	0.00005
(Constant)	-0.10716							

Application of Regression Equations to FY 1975 Sample

The second part of our analysis included the objective of predicting the proportion of current reenlistees (those who reenlisted in FY 1975) who would have been excluded from continued service if the best set of predictors was used as the basis for selection. In the regression analysis phase of the study, it was determined that the "New Criteria" were somewhat better predictors than either of the other sets of independent variables. Thus, the first equation used in this analysis applied the regression results of the new criteria on PMOSE score to determine what proportion of that group fell into superior (above one standard deviation), average, and inferior (below one standard deviation) categories. The results are shown in Table 24.

Table 24: Projected Post-Reenlistment Scores on PMOS Test for FY 1975 Reenlistees Using FY 1973 Sample Formula for New Criteria

Projected Scores	Careerists	First Reenlistment
Superior	0	0
Average	99.2%	99.2%
Inferior	.8%	.8%
N =	1414	968

None of the FY 1975 sample falls into the superior category, while only .8% falls into the inferior category.*

* PMOS score was used as the only dependent variable in this analysis because of poorer results for grade change variables and because the first reenlistment group could not be represented in this analysis.

The same procedure was used on an additional test of the FY 1975 sample except that the best 10 from among all significant predictor variables were used in the equation. Table 25 contains the results of this run.

Table 25: Projected Post-Reenlistment Scores on PMOS Test for FY 1975 Reenlistees Using FY 1973 Sample Formula for 10 Best Overall Predictors

Projected Scores	Careerists	First Reenlistment
Superior	0	0
Average	98.2%	99%
Inferior	1.8%	1%
N =	1071	899

In both of the above tables, it is evident that the overwhelming majority from both groups fell into the average category based on their pre-reenlistment scores on predictor variables.* It is perhaps more interesting, however, to note that none fall into the superior category, and less than 2% are in the inferior category. Thus, if we were to apply the New Criteria or some combination of all independent variables, we would probably eliminate very few of those soldiers who reenlisted in FY 1975. Of course, these results must be tempered by the fact that small variances and other factors limited the predictive edge gained by knowing pre-reenlistment scores on any of the variables. This precluded wide distribution for the FY 1973 sample also.

* The application of equations derived from the 1973 sample to real outcomes among those who reenlisted in 1975 must wait the availability of data for that sample. The application used here as simply a projection of outcomes based on the earlier results. Final validation can only occur with actual post-reenlistment data.

CONCLUSIONS

The lack of large magnitude results in the regression analysis makes conclusions difficult and somewhat slanted toward the negative. But some important findings were in evidence as a result of our two-pronged approach to the problem of reenlistment criteria.

1. It is evident from both our investigation of the operation of the system and our testing of predictive powers of the reenlistment criteria that the current reenlistment system provides little quality control or management for the Army. It essentially screens only the worst prospective reenlistees, letting all others through. Results using the dichotomized PMOS score best demonstrate this argument. Using actual PMOS score greatly increases predictive (and therefore control) capabilities.

In addition, even if tighter cut-off points were set, it is unlikely that they would be able to select the best qualified reenlistees. If the Army's objective is to reenlist as many willing candidates as possible, the limitations to the reenlistment system are not particularly damaging. If real quality control is desired, it seems evident certain changes are in order.

2. The current reenlistment system and the Manpower Management System are not well integrated. Again, if real control is to be achieved over the total system and the individual elements within that system, e.g., proper distribution in skill areas, most efficient use of individual skills, avoidance of grade logjams, etc., then better integration must be accomplished.

3. This conclusion concerns the data used to accomplish our study. Perhaps results of this and all studies using these data should be tempered by considering the source of the information. A large amount of missing data, and, we estimate, incorrect data make studies of the reenlistment system very difficult. Mechanizing some of this information may help, but a far greater asset would be tighter controls on its collection and recording.

4. In predicting post-reenlistment PMOS scores, the only criterion variable where both first-term and career reenlistees could be tested, a certain amount of success was obtained using both current standards, particularly PMOS scores before reenlistment, and new standards, especially EER subscores on leadership and duty performance, ACB scores over 90, and AFQT score. There was, however, a failure of "new" standards to add important new dimensions to the prediction of post-reenlistment success. This is partially due to criteria selection and partially due to our forced reliance on the results of the current evaluation systems. The EER seems to be of virtually no use in differentiating good from not-so-good soldiers. Quality selection based on this instrument cannot be effective until the evaluation system is changed. New and explicit means to evaluate individuals on the criteria for good soldiering are necessary.

Because this paper represents a first attempt at systematic evaluation of the reenlistment processes and standards, it should probably not have been expected to discover dramatic results, particularly in light of the condition of available data. In part, the objectives of the study were to discover just these kinds of hindrances to the examination of the reenlistment system. Among other outcomes of the research is the suggestion of what areas need to be considered in future studies on selection of reenlistees and the reenlistment system. The final paragraphs of the report will be spent in outlining what the authors feel are the directions this research should take.

First, there are several aspects of the current system which deserve serious examination. It appears that an evaluation of the YGMP could aid in determining whether: (1) the plan is being followed in the field; (2) the plan is, in fact, singling out for reenlistment the best soldiers available from among all first-term enlisted personnel; and (3) the plan contributes to the recycling of <u>all</u> personnel to the Army's advantage. This evaluation could be accomplished in part by the collection of data indicating numbers and types of persons designated

"Group 1" and "Group 2." In addition, the data might indicate the usefulness of applying the "first-term" criteria to all individuals desiring to reenlist.

Another area of concern is the integration of the YGMP with current standards for reenlistment. It would be helpful to know to what extent manpower planning impacts on individual selection, particularly in shortage MOS's. Of special interest is a determination of where in the selection system the application of management objectives is or could be applied.

This focus leads to another question concerning the operation of the current selection system. There is no compelling information on how individuals at each decision level go about deciding who should reenlist. This is particularly true in the grey areas of cases which require waivers. Army regulations do not spell out how such decisions are made or what standards should be used to judge the performance of a soldier. In this vacuum individuals and selection committees are left to use their own standards which are seldom made explicit and are probably not uniform. This system should be studied in detail with an eye to making such decisions as explicit and uniform as possible.

Second, given the apparent poor validity of the current system at selecting along a quality gradient, several strategies for improving this selection process should be examined.

(A) The first problem is the determination of adequate performance criteria. The criteria used in the current study (PMOS score and rate of promotion) had obvious shortcomings in terms of the quality of available data, but an additional problem was conceptual. PMOS test scores may measure the ability to take tests, not perform well on the job. That this issue is already of concern to the Army is reflected in current research on performance testing. Research on selection standards should reflect this concern also. To this end a suggested "next step" in research on reenlistment should be a determination of what makes a good soldier so that future studies may be based on more useful criteria variables. This research could be accomplished empirically or theoretically,

but the outcome should include a thorough examination of how these criteria will be operationalized.

(B) Once such criteria have been developed (or perhaps simultaneous with that development) it will then be feasible to study how to predict the quality of performance on the basis of independent variables which can be used for the selection of individuals. Current standards often lack the necessary distribution variability and/or reliability to serve as useful indicators. A large part of this problem stems not from the construct validity of these measures as predictors, but from more empirical measurement problems. Orend and Kriner suggest alternative measurement procedures as well as new constructs.* Future research may start with these and/or other possible standards, but must develop new measures if it is to be effective. The futility of using currently available data for this purpose is aptly demonstrated in the preceding study. For this reason future research will probably be somewhat smaller in scope and include a number of specific studies aimed at picking out one or a few useful predictors using a constant set of criteria. Once such studies have narrowed the number of "good" predictors of post-reenlistment success it will be possible to again resort to a system-wide approach. The primary reason for this limitation in scope is the time and money required to develop new predictors and test them without having data readily available. The payoff is good data and an accurate indication of what can be accomplished in this area.

Ultimately the goal is accurate prediction of post-reenlistment success so that the Army can exercise control over the quality of its reenlistees, i.e., get the best possible soldiers, and integrate that selection process with an effective manpower management system. This integration is the third area of research needs, but it is obviously dependent upon successful efforts in the first two research areas.

---

* Orend and Kriner, op. cit.

APPENDIX I

IN-SERVICE CASE WORKSHEET

TYPE WAIVER: _____

NAME:			SSN:			
GRADE:	DCR:	EES/DATE:	DAF	0	5	0
PMOS:		GT:	STATUS Grade	0	5	5
DCE:	TCE:	ETS:	Critical MOS: Yes ☐ No ☐			
BPED:	BASD:	ETB:	$ E- :			
AGE: (ETS): ____Yrs. ____Mos. ____Days			$ OA :			
SVC (ETS): ____Yrs. ____Mos. ____Days		MARITAL STATUS	RH/AGES (Begn)			

Disciplinary Record:
Current Enl: Hr CM: _____, Hr BJP _____ Time Lost: AWOL _____ Other _____
Prior Enl: Hr CM: _____, Hr BJP _____ Time Lost: AWOL _____ Other _____
Date of Last: CM _____ BJP _____ T/L: AWOL _____ Other _____

Service in RVN: YES ☐ NO ☐ | Current Station:

PHYSICAL DATA

PROFILE: P____ U____ L____ H____ E____ S____. DATE:_____. ASG LIMIT CODES:_____

Height: Weight: Age: (Max Auth Weight _____)

Comments:

Continued on Reverse Side: yes ( ) no ( )

ANALYSIS RECOMMENDATION:

APPROVE: _____ SYNOPSIS OF REASONS:

DENY:

OTHER:

ACTION:
Supervisor: Concur _____ Non-concur _____ Date _____
Action Off: Approve _____ Disapprove _____ Date _____
(Supervisor and Action officer will use comments to indicate reasons for non-concurrence and disapproval)

Coordination:

REVIEW	EPD, MILPERCEN	Date
	Director, EPD	
	Division Chief	
	Branch Chief	
	Cdr, USAREA	

PCEA Form 1 Aug 78 602 Prior editions are obsolete.

Items checked below comprise a reply to basic inquiry:

( ) Waiver of _____ disqualification(s) checked:

( ) Overage
( ) Overweight
( ) Time Lost
( ) Flagging Action
( ) Grade and Service
( ) Education
( ) PMOS Test Score
( ) Non-Promotable Status
( ) Enlistment Restriction Period
( )

for the purpose of ( ) reenlistment in Regular Army in:

( ) extention of enlistment in.

( ) Granted provided otherwise qualified

( ) For a period not to exceed

( ) Not favorably considered

( )

1

CONTINUATION (Specify item being continued)

APPENDIX 2

Frequencies on FY 1973 Sample

Table 1: Type of Accession in 1973 - FY 1973 Sample

	#	%
Immediate reenlistment	5031	81.4
Reenlistment 2 to 90 days after separation from diverse sources	147	2.4
Reenlistment 90 days after separation from various sources	999	16.2
Error	1	---
TOTAL	6178	100.0

Table 2 : Careerists versus First Reenlistment - FY 1973 Sample

	#	%
First Reenlistment	2119	43.6
Careerist	2737	56.4
TOTAL	4856	100.0

Table 3: Grade in 1975 - FY 1973 Sample

	#	%
E1	27	0.4
E2	37	0.6
E3	103	1.8
E4	844	14.6
E5	2074	35.9
E6	1231	21.3
E7	1005	17.4
E8	335	5.8
E9	122	2.1
TOTAL	5778	100.0

Table 4: Career Management Area - FY 1973 Sample

Career Area	72		73		74		75	
	#	%	#	%	#	%	#	%
0	560	11.0	525	8.5	479	7.8	395	6.8
1	1155	22.7	1447	23.5	1437	23.4	1365	23.6
2	165	3.2	191	3.1	216	3.5	209	3.6
3	437	8.6	506	8.2	508	8.3	483	8.4
4	79	1.6	105	1.7	109	1.8	110	1.9
5	190	3.7	227	3.7	229	3.7	224	3.9
6	714	14.1	873	14.2	806	13.1	742	12.8
7	985	19.4	1270	20.6	1299	21.2	1256	21.7
8	41	0.8	59	0.9	60	1.0	55	1.0
9	754	14.8	964	15.6	989	16.1	938	16.2
TOTAL	5080	100.0	6167	100.0	6132	100.0	5777	100.0

Table 5 : Academic Education Level - FY 1973 Sample

Level	FY72		FY73		FY74		FY75	
	#	%	#	%	#	%	#	%
0-8	150	3.1	126	2.1	99	1.7	57	1.0
9th	231	4.8	217	3.7	180	3.0	105	1.8
10th	391	8.1	345	5.8	268	4.5	144	2.5
11th/12th	581	12.1	553	9.3	421	7.0	243	4.3
GED	795	16.5	1204	20.3	1499	25.1	1697	29.7
H.S. Graduate	2190	45.5	2795	47.1	2764	46.3	2614	45.8
1 Year College	247	5.1	361	6.1	377	6.3	399	7.0
2 Years College	126	2.6	189	3.2	211	3.5	283	4.9
3 Years College	40	0.8	49	1.0	69	1.2	76	1.3
4 Years or More College	59	1.2	85	1.4	81	1.4	92	1.6
TOTAL	4810	100.0	5936	100.0	5969	100.0	5710	100.0

Table 6 : Age Distribution - FY 1973 Sample

Age	#	%
< 20	1	---
20 - 24	1474	25.5
25 - 29	1897	32.9
30 - 34	903	15.6
35 - 44	1305	22.6
45 - 54	191	3.3
≥ 55	1	---
	5771	100.0

Table 7 : Race - FY 1973 Sample

	#	%
Caucasian	4509	78.0
Negro	1178	20.4
Other	87	1.5
Unknown	4	---
TOTAL	5778	100.0

Table 8 : Religion - FY 1973 Sample

	#	%
Protestant and Related	3468	75.5
Catholic	1030	22.4
Other	93	2.0
TOTAL	4591	100.0

Table 9 : Number of Dependents - FY 1973 Sample

	72		73		74		75	
	#	%	#	%	#	%	#	%
0	2918	47.2	1764	28.6	1439	23.3	1402	22.7
1	842	13.6	1274	20.6	1240	20.1	1083	17.5
2	803	13.0	1146	18.6	1289	20.9	1364	22.1
3	751	12.1	966	15.6	1114	18.0	1205	19.5
4	465	7.5	574	9.3	625	10.1	656	10.6
5	248	4.0	281	4.5	279	4.5	289	4.7
6	97	1.6	112	1.8	123	2.0	116	1.9
7	28	0.5	34	0.5	42	0.7	37	0.6
8	16	0.3	18	0.3	17	0.3	17	0.3
9 or more	10	0.2	9	0.2	10	0.1	9	0.1
TOTAL	6178	100.0	6178	100.0	6178	100.0	6178	100.0

Table 10: State of Residence (Region) - FY 1973 Sample

	#	%
NE	761	13.4
NC	1098	19.3
S	2638	46.5
W	833	14.7
Foreign Country	347	6.1
TOTAL	5677	100.0

Table 11: AFQT Distribution - FY 1973 Sample

	FY72		FY73		FY74		FY75	
	#	%	#	%	#	%	#	%
1.	192	4.5	269	5.0	269	5.0	254	5.0
2.	1157	26.9	1602	29.8	1598	30.0	1511	30.0
3.	2023	46.9	2502	46.6	2478	46.5	2348	46.6
4.	915	21.2	974	18.1	964	18.1	903	17.9
5.	22	0.5	22	0.4	22	0.4	21	0.4
TOTAL	4309	100.0	5369	100.0	5331	100.0	5037	100.0

Table 12: AWOL - FY 1973 Sample

	72	73	74 & 75
Days			
0	6138	6126	6044
1 - 5	21	17	28
6 - 10	8	5	16
11 - 20	5	10	18
21 - 50	5	15	29
> 50	1	5	43
% of individuals with AWOL	0.6	0.8	2.2

Table 13: Judicial Punishment and Non-Judicial Punishment - FY 1973 Sample

Number of Cases	72 JP	72 NJP	73 JP	73 NJP	74 & 75 JP	74 & 75 NJP
0	6161	5893	6160	5847	6117	5673
1	11	232	18	257	57	313
2	1	34	0	57	3	118
3	3	15	0	14	1	43
4	0	2	0	3	0	24
5	1	2	0	0	0	5
6	1	0	0	0	0	1
9	0	0	0	0	0	1
% of individuals with JP or NJP	0.3	4.6	0.3	5.4	1.0	8.2

Table 14: Waiver - FY 1973 Sample

	#	%
None	5966	96.5
Overage	5	0.1
Education	6	0.1
Medical	11	0.2
Lost Time	123	2.0
Grade	34	0.6
MOS	23	0.4
Drugs/Alcoholism	7	0.1
Bar to Enlistment	1	-
Other	1	-
TOTAL WAIVERS	211	3.4

Table 15: EER Total Score - FY 19. Sampl.

Score	FY 1972		FY 1973		FY 1974		FY 1975	
	#	%	#	%	#	%	#	%
3	-		-		2		-	
14	-		-		3		1	
17	-		-		-		1	
18	-		2		1		1	
20	-		-		1		-	
21	1		-		1		1	
24	2		2		1		3	
27	-		-		-		1	
28	1		6		2		4	
31	1		1		6		6	
34	1		2		3		2	
35	-		-		2		1	
38	1		1		7		1	
41	2		3		6		4	
44	4		4		5		11	
45	-		1		3		2	
48	11		15		12		7	
51	29		27		35		11	
53	-		-		-		1	
54	1		-		3		3	
55	8		18		11		7	
57	1		-		-		1	
58	9		16		20		7	
61	12		13		17		15	
64	14		19		18		6	
65	3		4		-		2	
68	18	5.2	22	4.8	19	5.2	10	3.0
71	27		37		36		13	
73	-		-		1		-	
74	9		24		24		9	
75	7		16		6		4	
76	25		-		-		-	
77	-		-		1		2	
78	27		43		23		23	
81	27		28		30		18	
82	2		-		1		-	
84	22		30		34		32	
85	1		6		7		3	
87	-		-		2		1	
88	39		40		33		33	
91	52		81		71		48	
94	43		62		54		52	
95	13		19		17		7	
97	12		20		15		12	
98	60	15.9	100	15.5	63	11.6	52	8.5
101	72		93		92		65	
102	1		1		1		-	
104	64		104		96		67	
105	11		15		13		8	
107	11		13		10		9	
108	98	11.2	113	10.4	130	9.5	99	6.9
110	-		-		1		-	
111	133		176		228		180	
113	-		2		-		-	
114	99		127		119		113	
115	77		102		104		122	
118	236	23.7	359	23.5	345	22.0	344	21.0
121	248	10.8	375	11.5	404	11.2	407	11.2
125	760	33.1	1120	34.3	1464	40.5	1787	49.4
TOTAL	2295		3262		3614		3619	

Table 16: Distribution of EER Subscores - Attitudes, Leadership and Duty Performance
FY 1973 Sample

Evaluation Level	1972			1973			1974			1975		
	ATTS*	LEAD**	DPER***	ATTS	LEAD	DPER	ATTS	LEAD	DPER	ATTS	LEAD	DPER
1	1645	1412	1683	2344	1946	2436	2725	2316	2818	2998	2606	3075
	71.58%	61.53%	73.14%	71.27%	59.20%	74.11%	75.03%	63.70%	77.61%	81.20%	70.57%	83.38%
2	435	559	415	646	872	568	576	379	533	479	807	442
	18.93%	24.36%	18.04%	19.64%	26.53%	17.28%	15.86%	24.17%	14.60%	12.97%	21.85%	11.98%
3	124	193	123	189	287	172	182	253	139	120	161	83
	5.40%	8.41%	5.35%	5.75%	8.73%	5.23%	5.01%	6.96%	3.83%	3.25%	4.36%	2.25%
4	84	119	73	95	161	94	113	150	109	73	82	56
	3.66%	5.19%	3.17%	2.89%	4.90%	2.86%	3.11%	4.12%	3.00%	1.98%	2.22%	1.52%
5	10	12	6	13	20	12	32	32	25	17	31	25
	0.44%	0.52%	0.26%	0.40%	0.61%	0.37%	0.88%	0.88%	0.69%	0.46%	0.84%	0.68%
6	0	0	1	2	1	5	4	6	7	5	6	7
			0.04%	0.06%	0.03%	0.15%	0.11%	0.17%	0.19%	0.14%	0.16%	0.19%
TOTAL	2298	2295	2301	3289	3287	3287	3632	3636	3631	3692	3693	3688

*Attitudes
**Leadership
***Duty Performance

Table 17: PMOS Evaluation - FY 1973 Sample

Score	FY 1972		FY 1973		FY 1974		FY 1975	
	#	%	#	%	#	%	#	%
40	15		21		101		108	
45	-		-		2		-	
49	-		-		1		-	
50	-		1		1		1	
53	2		1		1		1	
54	-		-		1		1	
55	-		1		1		-	
56	-		-		3		1	
57	-		-		2		3	
58	2		2		3		2	
59	2		1		2		2	
60	2		5		6		4	
61	4		3		4		1	
62	1		1		6		3	
63	1		6		9		6	
64	4		4		9		10	
65	3		6		9		9	
66	7		11		14		13	
67	6		10		19		16	
68	6		13		22		18	
69	12	2.8	18	2.9	35	4.9	31	4.1
70	15		28		28		30	
71	4		6		12		6	
72	10		17		28		22	
73	8		16		22		18	
74	7		15		18		28	
75	15		16		28		36	
76	12		24		26		22	
77	7		26		23		30	
78	19		23		37		36	
79	7		25		43		53	
80	21		15		32		39	
81	22		29		45		54	
82	17		34		50		57	
83	18		41		52		69	
84	27		39		51		92	
85	23		46		55		57	
86	28		35		64		90	
87	33		54		81		78	
88	34		58		66		95	
89	32		56		59		103	
90	43		64		90		109	
91	43		63		106		123	
92	28		53		75		109	
93	69		88		111		144	
94	55		54		89		117	
95	70		73		85		159	
96	49		71		126		139	
97	56		76		115		134	
98	66		93		139		169	
99	78	37.8	57	36.6	103	36.2	137	41.8
100	98		150		192		241	
101	5		12		19		8	
102	54		54		87		65	
103	46		94		114		164	
104	35		49		60		50	
105	42		53		94		141	
106	43		39		65		47	
107	34		60		84		71	
108	84		122		154		161	
109	4	18.3	20	18.4	30	17.6	20	17.1
110	85		138		204		251	
111	8		9		16		5	
112	26		35		71		75	
113	74		85		111		123	
114	24		27		54		47	
115	46		74		93		94	
116	23		36		61		53	
117	42		33		53		58	
118	46		93		125		113	
119	11	15.9	4	15.1	7	15.6	5	14.6
120	88		110		174		183	
121	6		4		4		4	
122	30		36		47		53	
123	42		82		89		100	
124	21		33		33		31	
125	39		55		59		74	
126	25		24		34		36	
127	14		34		45		46	
128	36		59		80		65	
129	10	12.9	8	12.6	11	11.3	5	10.7
130	45		93		122		126	
131	32		63		87		58	
132	24		47		87		57	
133	34		39		67		65	
134	23		39		55		44	
135	26		35		58		65	
136	22		31		54		40	
137	15		26		44		27	
138	17		28		37		37	
139	10	10.1	17	11.8	22	12.0	24	9.6
140	6		9		17		27	
141	12		15		19		23	
142	5		13		13		16	
143	4		11		11		6	
144	5		6		14		14	
145	4		8		8		3	
146	1		5		5		6	
147	2		3		7		4	
148	1		-		2		3	
149	1	1.7	-	2.2	3	1.9	3	1.9
150	1		1		3		2	
151	1		5		4		1	
152	-		3		2		2	
153	-		-		2		1	
154	1		-		-		1	
155	1		-		1		1	
156	-		-		2		1	
157	-		-		1		1	
158	-		-		-		1	
159	-	0.2	-	0.3	-	0.3	-	0.1
160	4	0.2	6	0.1	5	0.1	9	0.1
TOTAL	2425		3542		5103		5663	

Table 18 ACB Scores - FY 1973 Sample

Score	IN		AE		EL		GM		MM		CL		GT	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
49	2		-		-		-		-		-		-	
50	-		-		1		1		-		-		3	
51	1		-		-		1		-		-		-	
52	1		-		1		1		3		-		-	
53	2		1		-		-		-		-		1	
54	-		-		2		-		-		-		-	
55	-		2		-		-		2		-		2	
56	1		-		2		-		-		2		1	
57	7		-		4		-		1		-		-	
58	-		-		3		-		1		-		1	
59	-		2		1		2		-		-		1	
60	1		3		3		3		2		2		1	
61	4		-		1		-		4		1		-	
62	3		2		1		3		-		-		2	
63	4		9		4		6		3		2		-	
64	2		1		5		3		-		4		4	
65	6		1		8		4		2		1		8	
66	6		11		1		3		2		2		3	
67	5		-		7		3		1		3		5	
68	5		9		11		8		1		3		4	
69	10		6		7		5		5		3		9	
70	6		6		7		8		4		3		8	
71	33		10		13		7		4		2		10	
72	9		10		6		4		6		7		8	
73	22		10		16		10		13		3		10	
74	16		14		9		12		7		9		12	
75	15		13		19		9		10		7		19	
76	16		16		24		9		10		7		17	
77	23		17		11		12		26		13		15	
78	18		14		9		22		8		10		11	
79	29		24		26		23		9		7		16	
80	28		20		20		19		26		16		27	
81	29		31		25		25		28		13		21	
82	27		26		26		29		25		25		32	
83	39		20		30		40		30		19		24	
84	41		38		20		31		28		28		30	
85	43		27		32		37		36		42		36	
86	31		33		20		42		52		25		27	
87	47		37		49		52		40		40		34	
88	27		36		49		43		51		45		49	
89	60	19.1	35	15.0	46	13.2	49	13.3	54	12.4	35	9.5	36	12.2
90	48		59		58		60		73		50		65	
91	58		50		73		62		68		49		68	
92	32		75		53		82		61		41		72	
93	77		43		75		65		83		61		61	
94	54		67		64		66		104		61		67	
95	55		62		93		78		86		62		65	
96	55		28		64		79		79		53		65	
97	70		79		85		74		82		67		89	
98	58		106		74		89		100		75		72	
99	69	17.8	40	18.7	66	18.0	99	18.9	127	21.6	99	15.4	65	17.1

100	73		114		77		93		91		107		111	
101	74		105		79		123		92		96		91	
102	72		47		75		77		92		90		86	
103	87		111		103		118		104		101		104	
104	67		83		77		92		105		88		112	
105	96		70		111		124		102		95		88	
106	80		98		71		97		108		90		100	
107	88		101		99		121		109		111		93	
108	90		50		90		84		103		114		108	
109	99	25.5	106	27.2	114	22.8	109	26.1	90	24.9	99	24.7	90	24.4
110	66		99		94		93		100		115		114	
111	81		88		115		95		122		109		99	
112	76		88		95		103		87		119		119	
113	82		95		114		103		76		97		85	
114	77		59		73		87		95		139		104	
115	62		84		107		108		88		109		106	
116	69		55		113		107		94		113		123	
117	63		74		109		80		68		92		77	
118	74		69		70		93		73		82		96	
119	64	22.0	70	24.0	80	24.7	80	23.9	78	22.1	79	26.3	81	25.0
120	63		57		87		66		55		96		99	
121	60		60		115		68		66		94		59	
122	43		51		88		88		52		92		93	
123	37		24		75		76		60		78		56	
124	34		43		77		65		67		70		67	
125	28		25		53		41		54		63		57	
126	26		36		51		45		48		61		62	
127	28		25		41		43		54		50		27	
128	23		23		52		40		40		44		58	
129	23	11.2	14	11.0	38	17.2	28	14.1	40	13.4	38	17.1	25	15.0
130	15		14		32		23		41		42		34	
131	19		15		15		15		26		30		28	
132	14		26		21		16		35		27		21	
133	12		8		9		15		19		32		24	
134	11		13		14		15		28		24		21	
135	10		10		7		12		16		17		19	
136	4		7		11		12		9		29		18	
137	6		1		10		8		8		14		14	
138	9		6		10		5		10		12		8	
139	5	3.2	8	3.3	6	3.3	12	3.3	8	5.00	7	5.8	3	4.7
140	7		8		5		4		5		8		12	
141	4		2		3		4		4		9		9	
142	2		4		3		-		2		7		7	
143	4		2		3		2		5		3		11	
144	4		2		-		1		1		9		3	
145	5		1		-		-		2		1		3	
146	3		4		2		-		1		1		2	
147	-		-		-		1		1		1		1	
148	1		-		1		2		-		1		4	
149	4	1.0	1	0.7	2	0.5	1	0.4	-	0.5	-	1.0	3	1.4
150	-		-		1		-		1		1		-	
151	2		-		-		-		-		2		-	
152	1		-		-		-		1		2		4	
153	-		-		1		-		-		-		-	
154	1		-		-		-		-		-		-	
155	1		-		1		-		-		2		-	
156	-		-		1		-		-		-		-	
157	-		-		-		-		-		-		-	
158	-		-		-		-		-		-		-	
159	-	0.1	-		-	0.1	-		-		-	0.2	1	0.1
160	-		-		-		-		-		-		3	
TOTAL	3244		3250		3925		3975		3993		4008		4019	

APPENDIX 3

Frequencies on FY 1975 Sample

Table 1 : Type of Accession in 1975 - FY 1975 Sample

	#	%
Immediate reenlistment	1949	81.8
Reenlistment 2 to 90 days after separation from diverse sources	44	1.8
Reenlistment 90 days after separation from various sources	389	16.3
TOTAL	2382	

Table 2 : Careerists versus First Reenlistment - FY 1975 Sample

	#	%
First Reenlistment	968	40.6
Careerists	1003	42.1
Missing and Error	411	17.2
TOTAL	2382	

Table 3 : Grade in 1975 - FY 1975 Sample

	1975 #	1975 %
E1	5	0.2
E2	138	5.8
E3	180	7.6
E4	793	33.3
E5	581	24.4
E6	363	15.2
E7	245	10.3
E8	61	2.6
E9	16	0.6
TOTAL	2382	100.0

Table 4 : Career Management Area - FY 1975 Sample

Career Area	1975 #	1975 %
0	174	7.3
1	667	28.0
2	46	1.9
3	175	7.3
4	55	2.3
5	94	3.9
6	347	14.6
7	468	19.6
8	0	0.0
9	356	14.9
TOTAL	2382	100.0

Table 5 : Academic Education Level - FY 1975 Sample

	FY73		FY74			
	#	%	#	%	#	%
0-8	65	3.3	54	2.8	41	1.7
9th	94	4.8	66	3.4	43	1.8
10th	167	8.5	139	7.1	104	4.4
11th/12th	261	13.3	208	10.7	144	6.2
GED	240	12.2	338	17.3	573	24.3
H.S. Graduate	936	47.6	938	48.0	1166	49.5
1 Year College	108	5.5	109	5.6	143	6.1
2 Years College	56	2.8	57	2.9	82	3.5
3 Years College	18	0.9	22	1.1	23	1.0
4 Years or More College	22	1.1	22	1.1	35	1.5
TOTAL	1967	100.0	1953	100.0	2354	100.0

Table 6 : Age Distribution - FY 1975 Sample

AGE	1975	
	#	%
< 20	14	0.6
20 - 24	1017	43.0
25 - 29	656	27.7
30 - 34	346	14.7
35 - 44	292	12.3
45 - 54	41	1.7
≥ 55	0	0.0
TOTAL	2366	100.0

Table 7 : Race - FY 1975 Sample

	FY75 #	FY75 %
Caucasian	1786	75.0
Negro	540	22.7
Other	43	1.8
Unknown	13	0.5
	2382	100.0

Table 8 : Religion - FY 1975 Sample

	FY75 #	FY75 %
Protestant & Related	1222	51.4
Catholic	401	16.9
Other	13	0.5
No Religion	742	31.2
	2378	100.0

Table 9 : Number of Dependents - FY 1975 Sample

	FY75	
	#	%
No Dependents	653	27.4
1 Dependent	518	21.7
2 Dependents	553	23.2
3 Dependents	369	15.5
4 Dependents	180	7.6
5 Dependents	66	2.8
6 Dependents	25	1.0
7 Dependents	9	0.4
8 Dependents	1	0.0
9 or more Dependents	8	0.3
	2382	100.0

Table 10: State of Residence (Region) at Entry
FY 1975 Sample

Region	1975 #	1975 %
NE	295	13.3
NC	464	20.9
S	943	42.3
W	373	16.8
Foreign Country	148	6.7
TOTAL	2223	100.0

Table 11: AFQT Distribution - FY 1975 Sample

Level	FY73 #	FY73 %	FY74 #	FY74 %	FY75 #	FY75 %
1	72	3.9	71	3.9	85	3.9
2	478	25.9	478	26.2	614	28.3
3	903	48.8	889	48.8	1086	50.0
4	382	20.7	371	20.4	376	17.3
5	13	0.7	12	0.7	12	0.5
TOTAL	1848	100.0	1821	100.0	2173	100.0

Table 12: AWOL - FY 1975 Sample

# Days AWOL	FY73 #	FY73 %	FY74 #	FY74 %	FY75 #	FY75 %
0	2356	98.9	2359	99.0	2361	99.1
1 - 5	13	0.5	10	0.4	9	0.4
6 - 10	4	0.2	5	0.2	4	0.2
11 - 20	3	0.1	4	0.2	6	0.3
21 - 50	3	0.1	3	0.1	2	0.1
> 50	3	0.1	1	0.0	0	0.0
	2382		2382		2382	
% of Individuals with AWOL		1.1		1.0		0.9

Table 13: Judicial and Non-Judicial Punishment - FY 1975 Sample

# of Punishments	FY73 JP	FY73 NJP	FY74 JP	FY74 NJP	FY75 JP	FY75 NJP
0	2376	2246	2375	2235	2379	2251
1	6	114	7	116	3	101
2	0	19	0	27	0	23
3	0	1	0	2	0	6
4	0	1	0	2	0	0
5	0	0	0	0	0	1
9	0	0	0	0	0	0
	2382	2382	2382	2382	2382	2382

Table 14: Waiver - FY 1975 Sample

	#	%
None	2099	88.1
Overage	5	0.2
Education	5	0.2
Medical	14	0.6
Lost Time	87	3.7
Grade	21	0.9
MOS	11	0.5
Drugs/Alcoholism	5	0.2
Bar to Enlistment	6	0.2
Other	129	5.4
TOTAL WAIVERS	283	11.9

Table 15: EER Total Score - FY 1975 Sample

Score	FY73		FY74		FY75	
	#	%	#	%	#	%
10	-		-		1	
20	-		1		-	
21	1		1		-	
24	1		1		1	
27	-		-		1	
28	-		3		1	
30	-		-		1	
31	-		1		-	
35	-		1		1	
38	-		1		-	
41	1		1		4	
44	2		4		3	
48	1		8		3	
51	4		9		12	
54	-		3		1	
55	2		2		2	
58	3		7		7	
61	1		5		9	
64	2		5		1	
65	-		2		2	
68	4	3.8	7	5.6	8	4.3
71	6		12		10	
74	1		6		7	
75	4		3		3	
77	-		-		1	
78	5		10		11	
81	7		19		7	
82	1		-		1	
84	5		13		12	
85	1		1		4	
88	10		22		21	
91	11		34		21	
92	-		-		1	
94	13		17		17	
95	3		6		3	
97	4		3		8	
98	14	14.5	34	16.4	23	11.2
101	11		28		29	
104	18		31		32	
105	3		6		6	
107	2		1		2	
108	25	10.1	40	9.6	54	9.2
111	28		70		61	
114	22		56		44	
115	21		39		57	
118	56	21.7	97	23.8	147	23.0
121	80	13.7	136	12.4	123	9.2
125	212	36.2	353	32.1	581	43.2
TOTAL	585		1099		1344	

Table 16: Distribution of EER Subscores - Attitudes, Leadership and Duty Performance FY 1975 Sample

Evaluation Level	1973 ATTS*	1973 LEAD**	1973 DPER***	1974 ATTS	1974 LEAD	1974 DPER	1975 ATTS	1975 LEAD	1975 DPER
1	440 73.95%	367 61.58%	454 76.30%	778 70.34%	604 54.66%	814 73.60%	1032 75.27%	849 61.93%	1102 80.50%
2	99 16.64%	148 24.83%	96 16.14%	218 19.71%	315 28.51%	196 17.72%	232 16.92%	356 25.97%	165 12.05%
3	37 6.22%	53 8.89%	29 4.87%	64 5.79%	118 10.68%	53 4.79%	66 4.81%	98 7.15%	63 4.60%
4	15 2.52%	24 4.03%	14 2.35%	37 3.35%	55 4.98%	35 3.16%	33 2.41%	58 4.23%	31 2.26%
5	4 0.67%	4 0.67%	1 0.17%	9 0.81%	10 0.90%	7 0.63%	7 0.63%	9 0.66%	7 0.51%
6	0	0	1 0.17%	0	3 0.27%	1 0.09%	1 0.09%	1 0.07%	1 0.07%
TOTAL	595	596	595	1106	1105	1106	1371	1371	1369

*Attitudes
**Leadership
***Duty Performance

Table 17: PMOS Evaluation - FY 1975 Sample

Score	FY73		FY74		FY75	
	#	%	#	%	#	%
40	13		26		25	
48	1		-		-	
54	1		-		-	
56	-		-		1	
58	2		2		-	
59	1		1		-	
60	2		1		1	
61	-		1		-	
62	1		1		1	
63	1		2		3	
64	2		2		4	
65	1		2		-	
66	3		4		3	
67	5		3		1	
68	7		4		3	
69	5	4.9	5	4.4	3	2.3
70	6		6		12	
71	1		2		1	
72	1		5		7	
73	3		7		3	
74	4		6		10	
75	3		5		11	
76	2		3		5	
77	8		6		7	
78	9		9		16	
79	9		6		10	
80	11		8		12	
81	7		11		19	
82	7		10		15	
83	7		15		23	
84	13		17		22	
85	7		7		16	
86	8		10		29	
87	14		14		26	
88	17		18		38	
89	9		12		33	
90	12		28		49	
91	25		20		41	
92	19		15		28	
93	18		19		51	
94	17		21		38	
95	18		27		36	
96	19		33		57	
97	21		27		42	
98	31		36		56	
99	13	36.8	14	34.4	44	38.6

100	31		45		78	
101	-		7		7	
102	22		14		26	
103	20		29		54	
104	15		20		27	
105	15		27		45	
106	18		18		18	
107	9		16		28	
108	23		46		76	
109	5	17.2	3	18.5	12	18.9
110	37		56		85	
111	3		1		5	
112	11		13		32	
113	20		21		46	
114	16		20			
115	18		28		29	
116	12		22		22	
117	10		13		23	
118	24		27		43	
119	4	16.9	1	16.6	2	15.6
120	30		40		76	
121	3		4		5	
122	11		16		24	
123	14		29		41	
124	6		14		20	
125	17		17		28	
126	2		8		16	
127	11		7		11	
128	14		24		30	
129	1	11.9	1	13.2	3	13.0
130	13		26		42	
131	10		11		23	
132	16		19		26	
133	8		14		28	
134	11		14		17	
135	9		14		16	
136	6		16		17	
137	7		6		7	
138	4		5		11	
139	4	9.6	7	10.9	10	10.0
140	4		8		3	
141	4		1		4	
142	2		6		8	
143	4		1		2	
144	3		3		2	
145	2		-		1	
147	-		-		1	
148	2		-		1	
149	-	2.3	1	1.6	1	1.2
150	1		1		1	
151	-		-		1	
153	-		-		1	
154	-		1		1	
157	-		1		-	
160	3	0.4	2	0.4	4	0.4
TOTAL	919		1215		1961	

Table 18: ACB Scores - FY 1975 Sample

Score	IN		AE		EL		GM		MM		CL		GT	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	-		1		1		-		-		1		-	
4	-		-		-		-		-		-		1	
5	-		-		-		-		-		-		1	
7	3		-		-		-		-		-		-	
10	-		-		-		-		1		-		-	
14	-		-		1		-		-		-		-	
22	1		-		-		-		1		-		-	
23	-		-		-		-		-		-		1	
49	1		-		-		-		-		-		-	
50	-		4		1		-		1		-		-	
51	-		-		1		-		-		-		-	
52	-		-		1		-		3		-		-	
53	2		2		-		-		-		-		-	
54	-		-		-		1		-		-		-	
55	1		-		-		-		-		-		-	
56	-		-		2		-		-		-		2	
57	-		3		1		1		-		-		-	
58	2		-		-		-		1		-		-	
59	1		1		-		-		-		-		-	
60	1		1		2		1		1		-		1	
61	1		-		3		-		2		1		6	
62	1		-		2		2		3		1		2	
63	4		3		3		-		4		-		3	
64	2		1		1		3		-		1		2	
65	6		-		4		1		1		1		5	
66	1		4		-		2		3		-		2	
67	3		2		3		-		4		2		-	
68	1		-		4		2		3		1		2	
69	4		5		2		1		1		-		3	
70	4		5		5		3		2		8		-	
71	8		3		1		1		2		2		5	
72	4		8		6		2		6		2		5	
73	5		4		2		2		7		4		11	
74	7		8		3		7		5		-		5	
75	9		5		10		2		5		6		6	
76	8		8		10		8		11		2		9	
77	16		10		9		5		6		4		9	
78	8		6		8		11		9		10		7	
79	14		10		10		6		7		6		9	
80	8		7		11		11		8		3		5	
81	13		10		10		15		19		7		8	
82	14		15		15		19		13		6		11	
83	25		13		7		16		16		7		15	
84	12		16		8		11		18		11		16	
85	26		14		9		17		7		9		21	
86	18		11		26		11		22		20		19	
87	19		19		20		20		22		8		19	
88	12		10		24		25		11		21	8.3	17	13.1
89	20	21.0	27	17.4	19	14.5	23	13.3	24	14.4	33		37	
90	14		17		36		30		36		20		24	
91	27		26		23		29		29		29		38	
92	22		28		30		35		30		36		22	
93	35		23		24		35		44		35		45	
94	22		36		25		29		40		29		29	
95	24		40		43		34		39		29		43	
96	27		20		28		35		38		38		40	
97	26		45		50		36		40		27		49	
98	26		41		32		31		37		43	18.3	27	20.4
99	32	18.8	10	21.1	36	19.3	45	19.7	43	21.8				

100	34		43		39		31		40		51	50	
101	42		45		45		59		39		32	34	
102	37		14		44		32		47		54	52	
103	46		42		37		47		39		46	45	
104	35		41		23		43		51		45	53	
105	33		24		49		45		40		50	27	
106	33		50		31		41		45		53	51	
107	38		39		34		28		48		32	37	
108	22		16		45		49		43		52	46	
109	22	25.2	53	27.0	48	23.3	47	24.5	32	24.6	44	26.3	33	24.7
110	25		34		34		36		29		68	46	
111	26		35		51		35		38		39	29	
112	33		46		36		47		44		54	53	
113	26		29		54		46		26		46	32	
114	28		25		30		39		36		40	49	
115	22		31		41		42		37		40	16	
116	26		25		34		45		36		45	58	
117	24		31		50		42		29		21	23	
118	14		12		29		42		33		41	50	
119	24	18.3	28	21.8	28	22.8	24	23.2	30	19.6	22	23.9	27	22.1
120	17		19		36		36		44		44	43	
121	32		13		30		36		27		42	11	
122	14		22		37		38		28		23	30	
123	20		9		27		30		27		24	31	
124	21		15		40		35		14		34	17	
125	8		21		29		19		25		23	12	
126	12		14		17		28		18		21	29	
127	17		7		18		17		13		19	9	
128	8		10		18		16		17		21	22	
129	14	12.0	8	10.2	14	15.7	13	15.6	19	13.5	16	15.3	12	12.4
130	10		4		14		7		17		10	23	
131	6		2		7		2		6		10	3	
132	8		7		11		8		21		17	9	
133	4		1		3		1		9		13	11	
134	8		1		4		10		8		17	4	
135	2		4		3		9		9		6	11	
136	2		3		7		5		10		14	9	
137	4		2		2		2		3		3	10	
138	4		4		2		3		4		8	4	
139	3	3.8	2	2.2	4	3.4	2	2.8	4	4.3	3	5.8	1	4.9
140	1		1		2		1		3		10	12	
141	2		-		1		4		-		-	3	
142	-		1		3		1		1		7	1	
143	2		1		-		-		3		5	5	
144	1		-		4		2		6		4	1	
145	2		-		2		1		-		2	3	
146	1		-		1		3		-		-	7	
147	-		1		1		-		1		3	2	
148	1		-		2		1		-		1	-	
149	-	0.7	-	0.3	1	1.0	-	0.8	-	0.8	-	1.8	1	2.0
150	1		-		-		1		-		3	-	
151	1		-		-		-		-		-	-	
153	1		-		-		-		-		1	4	
154	-		-		-		-		-		1	-	
155	-		-		-		1		-		-	-	
160	-	0.2	-		-		-	0.1	-		-	0.3	3	0.4
TOTAL	1357		1357		1695		1720		1724		1743		1736	

Raw Data Variables: Finally, several other variables were included in our data collection effort. These were used either as components of actual test variables, eg., grade, date of entry, and date of last promotion, or were intended for use as regular variables, but were dropped for various technical reasons, eg., too few cases, poor data, and lack of variance. Below is a list of all data entries as they were collected from EMTR and file sources:

1. Type of last accession
2. Terms of Service or enlistment
3. Year-month basic enlisted service
4. Additional skill identifier
5. Career Management Field
6. Defense Language Aptitude Test (raw score)
7. Duty MOS
8. PMOS
9. PMOS Evaluation Score
10. Secondary MOS Evaluation Score
11. Secondary MOS
12. Technical Training Qualification
13. Date of Last Grade Change
14. Date of Grade in which serving
15. Grade in which serving
16. Proficiency Pay Status
17. Conus Area of Inference
18. Overseas Area of Preference
19. State of Residence of Entry on Active Duty
20. AFQT
21. Academic Education Level
22. Average Efficiency Index
23. Date of Birth
24. Number of Dependents
25. Race
26. Religious Denomination
27. Seven ACB scores
28. Number of AWOL Days
29. Number of Non-Judicial Punishments Received
30. Number of Judicial Punishments (Courts-Marshall)
31. Adaptability Score - EER
32. Attitude Score - EER
33. Initiative Score - EER
34. Leadership Score - EER
35. Responsibility Score - EER
36. Duty Performance Score - EER
37. Advancement Potential Score - EER
38. DA/NCO Development Course Recommended
39. Waivers on Reenlistment - 9 types
40. Disposition of Separated Individuals

APPENDIX 5: Correlation Matrices

Table 1: Correlation Matrix for the Regression Analysis of New Predictors on PMOSE for First Reenlistment

	DEP3	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY
LATS	.115						
AFQT	.207	.209					
ACB90	.217	.157	.622				
EERATT	-.237	-.009	-.080	-.080			
EERLEAD	-.232	-.052	-.066	-.039	.759		
EERDUTY	-.235	-.029	-.092	-.072	.822	.767	
NCO	.058	-.001	.086	.056	-.172	-.161	-.145

Table 2: Correlation Matrix for the Regression Analysis of Demographic Predictors on PMOSE for First Reenlistment

	DEP3	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
REG1	.011									
REG2	.026	.159								
REG3	-.024	.075	-.066							
REG4	.011	.214	.129	.034						
NDEP	.030	-.027	-.014	.020	-.071					
RAC1	-.091	-.001	-.089	.120	-.137	.056				
RAC2	.141	.060	.132	-.075	.160	.009	-.171			
REL1	.015	-.036	-.049	.109	-.065	.032	.121	-.030		
REL2	.003	.064	-.053	-.036	-.033	.011	-.043	.040	.508	
AEL2	.168	-.005	.009	-.007	.023	.051	.047	.019	.032	.040

Table 3: Correlation Matrix for the Regression Analysis of Current Predictors on PMOSE for Careerists.

	AEL1	ACB1	EERT	WAIVER	PMOSE
ACB1	-.013				
EERT	-.000	.008			
WAIVER	.018	-.071	-.051		
PMOSE	-.015	-.021	.192	-.097	
DEP3	-.023	.031	.259	-.066	.212

Table 4: Correlation Matrix for the Regression Analysis of New Predictors on PMOSE for Careerists.

	DEP3	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY
LATS	.053						
AFQT	.136	.167					
ACB90	.103	.057	.399				
EERATT	-.264	-.065	-.071	-.009			
EERLEAD	-.292	-.098	-.084	-.011	.769		
EERDUTY	-.301	-.085	-.069	-.023	.784	.816	
NCO	.047	.088	.041	.003	-.190	-.178	-.158

Table 5: Correlation Matrix for the Regression Analysis of Demographic Predictors on PMOSE for Careerists.

	DEP3	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
REG1	-.013									
REG2	.029	.426								
REG3	-.019	.327	.262							
REG4	.010	.461	.424	.323						
NDEP	-.021	-.084	-.108	-.023	-.070					
RAC1	-.039	.028	-.032	.111	-.060	-.002				
RAC2	.127	.021	.061	-.041	.032	-.063	-.098			
REL1	-.022	-.053	-.051	.052	-.074	.141	.118	-.085		
REL2	-.031	-.024	-.050	-.080	-.085	.126	-.040	.026	.401	
AEL2	.107	.023	.045	-.028	.047	-.080	.037	.035	-.007	.027

Table 6: Correlation Matrix for the Regression Analysis of Current Predictors on Time to Grade for Careerists.

	DEP1	PMOSE	AEL1	ACB1	EERT
PMOSE	-.076				
AEL1	.016	-.021			
ACB1	-.052	.035	-.013		
EERT	-.048	.135	.000	.008	
WAIVER	.051	-.055	.018	-.071	-.052

Table 7: Correlation Matrix for the Regression Analysis of New Predictors on Time to Grade for Careerists

	DEP1	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY
LATS	.011						
AFQT	-.001	.178					
ACB90	-.151	.045	.296				
EERATT	.077	.001	-.001	.059			
EERLEAD	.080	-.027	-.012	.082	.636		
EERDUTY	.099	-.041	-.002	.049	.681	.764	
NCO	-.008	.070	.031	.006	-.112	-.059	-.091

Table 8: Correlation Matrix for the Regression Analysis of Demographic Predictors on Time to Grade for Careerists.

	DEP1	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
REG1	-.022									
REG2	-.051	.558								
REG3	-.029	.469	.427							
REG4	-.020	.586	.562	.475						
NDEP	.151	-.009	-.046	.018	-.002					
RAC1	-.055	.042	-.004	.096	-.033	-.003				
RAC2	.007	-.011	.035	-.053	.009	.000	-.734			
REL1	.013	-.001	-.033	.058	-.028	.032	.129	-.059		
REL2	.074	-.025	-.045	-.089	-.057	.079	-.103	.079	.170	
AEL2	-.062	.033	.016	-.015	.016	-.032	-.000	-.008	.017	.014

Table 9: Correlation Matrix for the Regression Analysis of the Combined Predictors on Time to Grade for Careerists

	DEP1	PMOSE	ACB1	EERT	MAIVER	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY	NCO	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
PMOSE	-.092																				
ACB1	-.033	.049																			
EERT	-.052	.037	.013																		
MAIVER	.048	-.035	.017	-.063																	
LATS	.002	.021	.051	-.005	-.031																
AFQT	.010	.049	.064	-.002	-.015	.176															
ACB90	-.140	.055	.359	-.045	.014	.043	.292														
EERATT	.077	-.128	.019	-.596	.069	-.022	.010	.081													
EERLEAD	.086	-.094	.045	-.670	.154	-.025	-.011	.084	.670												
EERDUTY	.096	-.126	.007	-.658	.111	-.032	.008	.064	.712	.768											
NCO	.009	.068	-.018	.068	-.041	.079	.017	-.007	-.115	-.068	-.093										
REG1	-.044	-.034	.003	-.024	.018	-.001	.000	.004	.021	.065	.039	.023									
REG2	-.032	-.034	-.006	-.055	.007	-.051	.027	.018	.034	.047	.018	.011	.577								
REG3	-.043	-.013	.054	-.072	-.003	-.060	-.121	.024	.038	.071	.076	.024	.497	.442							
REG4	-.008	-.020	.003	-.026	-.012	-.023	.048	-.025	.007	.028	.018	.031	.610	.579	.500						
NDEP	.160	-.032	.025	.036	.015	-.003	-.016	-.070	-.032	-.023	-.015	-.008	-.021	-.066	.006	-.026					
RAC1	-.061	-.041	-.086	.034	.011	-.094	-.295	-.203	-.013	-.007	.021	.026	.014	.010	.076	-.010	-.001				
RAC2	.009	.034	.148	-.035	-.005	.061	.310	.239	.021	.021	-.002	-.028	.011	.017	-.037	-.011	-.030	-.853			
REL1	-.007	-.002	.037	.047	-.033	.061	-.058	-.046	.005	-.014	-.006	-.031	.007	-.041	.063	-.032	.035	.115	-.073		
REL2	.066	.006	-.002	-.006	-.069	.035	-.009	-.031	.012	.008	.025	.041	-.032	-.071	-.093	-.086	.082	-.107	.078	.160	
AEL2	-.046	.010	.021	-.008	.007	.161	.190	.058	-.039	-.050	-.034	-.032	.058	.237	.014	.023	-.045	-.002	-.015	.052	.043

Table 10 : Correlation Matrix for the Regression Analysis of the Current Predictors on Time to Promotion for Careerists

	DEP1	PMOSE	AEL1	ACB1	EERT
PMOSE	-.048				
AEL1	.008	-.021			
ACB1	-.073	.035	-.013		
EERT	-.017	.135	.000	.008	
WAIVER	.045	-.055	.018	-.071	-.052

Table 11: Correlation Matrix for the Regression Analysis of New Predictors on Time to Promotion for Careerists.

	DEP1	SATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY
LATS	-.041						
AFQT	-.011	.178					
ACB90	-.088	.045	.296				
EERATT	.034	.001	-.001	.059			
EERLEAD	.067	-.027	-.012	.082	.636		
EERDUTY	.058	-.041	-.002	.049	.681	.764	
NCO	-.013	.070	.031	.006	-.112	-.059	-.091

Table 12 Correlation Matrix for the Regression Analysis of Demographic Predictors on Time to Promotion for Careerists.

	DEP1	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
REG1	-.009									
REG2	-.018	.558								
REG3	-.018	.469	.427							
REG4	-.010	.586	.562	.475						
NDEP	.120	-.009	-.046	.018	-.002					
RAC1	-.041	.042	-.004	.096	-.033	-.003				
RAC2	-.006	-.011	.035	-.053	.009	.000	-.734			
REL1	.003	-.001	-.033	.058	-.028	.032	.129	-.059		
REL2	.037	-.025	-.045	-.089	-.057	.079	-.103	.079	.170	
AEL2	-.073	.033	.016	-.015	.016	-.032	-.000	-.008	.017	.014

Table 13: Correlation Matrix for the Regression Analysis of Combined Predictors on Time to Promotion for Careerists

	DEP1	PMOSE	ACBI	EERT	WAIVER	LATS	AFQT	ACB90	EERATT	EERLEAD	EERDUTY	NCO	REG1	REG2	REG3	REG4	NDEP	RAC1	RAC2	REL1	REL2
PMOSE	-.053																				
ACBI	-.047	.049																			
EERT	.012	.037	.013																		
WAIVER	.038	-.035	.017	-.063																	
LATS	-.046	.021	.051	-.005	-.031																
AFQT	-.008	.049	.064	-.002	-.015	.176															
ACB90	-.085	.055	.359	-.045	.014	.043	.292														
EERATT	.022	-.128	.019	-.596	.069	-.022	.010	.081													
EERLEAD	.060	-.094	.045	-.670	.114	-.025	-.011	.084	.670												
EERDUTY	.041	-.126	.007	-.658	.111	-.032	.008	.064	.712	.768											
NCO	-.000	.068	-.018	.068	-.041	.079	.017	-.007	-.115	-.068	-.093										
REG1	-.019	-.034	.003	-.024	.018	-.001	.000	.004	.021	.065	.039	.023									
REG2	.003	-.035	-.006	-.055	.007	-.051	.027	.018	.034	.047	.018	.011	.577								
REG3	-.037	-.013	.054	-.072	-.003	-.060	-.121	.024	.038	.071	.076	.024	.497	.442							
REG4	-.022	-.020	.003	-.026	-.012	-.023	.048	-.025	.007	.028	.018	.031	.610	.579	.500						
NDEP	.120	-.032	.025	.036	.015	-.003	-.016	-.070	-.032	-.023	-.015	-.008	-.021	-.066	.006	-.026					
RAC1	-.035	-.041	-.086	.034	.011	-.094	-.295	-.203	-.013	-.007	.021	.026	.014	.010	.076	-.010	-.001				
RAC2	.002	.034	.148	-.035	-.005	.061	.310	.239	.021	.021	-.002	-.028	.011	.017	-.037	-.011	-.030	-.853			
REL1	-.039	-.002	.037	.047	-.033	.061	-.058	-.046	.005	-.014	-.006	-.031	.007	-.041	.063	-.032	.035	.115	-.073		
REL2	.020	.006	-.002	-.006	-.069	.035	-.009	-.031	.012	.008	.025	.041	-.032	-.071	-.093	-.086	.082	-.017	.078	.160	
AEL2	-.081	.010	.021	-.008	.007	.161	.190	.058	-.039	-.050	-.034	-.032	.018	.024	.014	.023	-.045	-.002	-.015	.052	.043

Table 14: Correlation Matrix for the Regression Analysis of Statistically Significant Predictors on a Combined Success Criteria for First Reenlistment.

	DEP4	EERT	ACB1	ACB90	EERLEAD	AFQT	LATS	AEL2	RAC2	RAC1
EERT	.060									
ACB1	.022	-.012								
ACB90	.001	.061	.693							
EERLEAD	-.075	-.857	.035	-.023						
AFQT	.013	.101	.249	.488	-.068					
LATS	.022	.036	.028	.105	-.034	.219				
AEL2	.050	.117	.049	.176	-.061	.253	.088			
RAC2	-.019	.021	.234	.326	.015	.289	.084	-.027		
RAC1	.031	.011	-.191	-.285	-.033	-.298	-.060	.014	-.547	
PMOSE	.015	.085	.104	.117	-.078	.081	.060	.082	.088	-.073

Table 15: Correlation Matrix of the Regression Analysis of Statistically Significant Predictors on a Combined Success Criteria for Careerists.

	DEB4	EERT	WAIVER	EERDUTY	AFQT	EERLEAD	ACB90	RAC2	AEL2	REL2
EERT	.102									
WAIVER	-.023	-.097								
EERDUTY	-.096	-.758	.102							
AFQT	.007	.060	-.057	-.035						
EERLEAD	-.111	-.791	.129	.761	-.060					
ACB90	.076	.008	-.048	-.021	.315	-.010				
RAC2	.000	.001	-.048	-.030	.258	-.002	.250			
AEL2	.056	.088	.000	-.062	.171	-.073	.046	-.023		
REL2	-.027	.059	-.029	-.044	.007	-.042	-.059	.033	.112	
PMOSE	.044	.134	-.032	-.130	.041	-.113	.030	.022	.010	.232