Annotated Bibliography of Recruiting-Related Research: 1970 - 1989

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ANNOTATED BIBLIOGRAPHY OF

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This report contains an annotated bibliography of recruiting-related research accomplished by the Navy Personnel Research and Development Center during the period 1970-1989.
FOREWORD

This report contains an annotated bibliography of recruiting-related research accomplished by the Navy Personnel Research and Development Center during the period 1970-1989. Its purpose is to bring together into one reference document the many and diverse strands of research that have been conducted over many years in support of military recruiting. It is expected to be of benefit to the operational and research communities.

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INTRODUCTION

This report contains an annotated bibliography of technical reports which address recruiting-related issues published by the Navy Personnel Research and Development Center (NAVPERSRANDCEN) and its predecessor organizations, the Naval Personnel and Training Research Laboratory (NPTRL) in San Diego, CA (1970 - 1973) and the Naval Personnel Research and Development Laboratory (NPRDL) in Washington, DC (1970 -1973). The period covered by these reports is from 1970 through mid FY 1989.

The bibliography lists reports that cover the following subject areas:

- Manpower Supply Estimation and Management
- Marketing Strategies
- Applicant Screening, Tenure and Performance Prediction
- Person-Job Matching
- Recruiting Management and Support
- Computerized Recruiting Functions

Readers are encouraged to write to the Defense Technical Information Center (DTIC) to receive copies of those reports that are part of its data base. DTIC assigns an "AD" number to each of its reports for easy retrieval. These are indicated in the bibliography. DTIC may be contacted at Cameron Station, Alexandria, VA 22304-6145. If a report does not have an "AD" number, the reader should send requests for reports to the Commanding Officer, NAVPERSANDCEN.


MANPOWER SUPPLY ESTIMATION AND MANAGEMENT


Women and men enlisting in the Navy today are making a similar occupational choice now that most of the barriers to equal opportunity have been lifted. Yet there is a popularly held belief, and some evidence for this belief, that the motives for joining and the work values of female and male enlistees differ.


This report discusses a forecasting methodology based upon asymptotic exponential regression that may be utilized to obtain projections of this population in the post-1993 period. Specifically, a methodology is presented to obtain projections of the 18-year-old male population.
In anticipation of the projected decline in the national population of young men, defense planners have given increased thought to expanding the role of women in the military. A survey was conducted to gauge the interest of women and men in joining the military under present conditions and under three alternative options involving greater utilization of women. Findings are presented regarding the percentage of women and men interested in joining the military currently and under each alternative.


This report describes the development of a multiperiod goal programming model for deciding how many officers the Navy should commission from several commissioning sources for several career specialty areas. The model, called the Accessioning Into Designators (AIDS) model, was adopted by OP-130, Officer Program Implementations Branch DCNO(MP&T) for planning and policy analysis.

To gain insight into and obtain estimates of the relative size of the potential female and male Navy military supply pool, health examination survey data, mental aptitude data, and demographic data were analyzed. The population of females and males 17-24 years old was successively decremented by estimates of the population of these individuals not available for military service due to physical/medical, mental, or family reasons. Additionally, individuals not interested in military service were deleted from the estimated supply pool.


This effort identified and measured those variables and interrelationships that define the national/regional supply of enlisted personnel for the Navy. An econometric model of the enlistment process, which provides parameter estimates of the model, and forecasts "supply" (or, more accurately, enlistment contracts) under alternative scenarios is presented.


A new computerized management system, the Structured Accession Planning System, will provide Navy planners with techniques to perform integrated manpower management. This system will enable planners to evaluate the relationships between alternative manpower requirements, personnel policies, and the available pool of qualified military manpower.

Due to the demographic shift in the enlistment pool, increased consideration may be given to augmenting the prime enlistment pool of 17-21 year old males by somewhat older individuals. A survey was conducted to assess the interest of 23-29 year-old men in joining the military under present conditions and under monetary and nonmonetary incentives.


An analysis was undertaken to determine the feasibility of conducting accession supply modeling for older-age individuals, in response to current recruiting and demographic trends. This report discusses the methodology of supply models and the availability of data. The author concludes that it is feasible to model the supply of older-age enlistees and discusses the necessary procedures.


This report addresses the different phrases used by military planners and researchers: "supply of manpower for military service," and "military personnel supply." There is no commonly accepted definition of "military manpower supply." This report addresses three principal methods used in personnel supply research, describing how supply is defined within each, along with corresponding strengths and weaknesses. Since no single approach provides a comprehensive understanding of supply, a prospectus for integrating these methods into a logical framework is presented.


College graduates, a primary source for the Navy's unrestricted line officers, in the fields of engineering, mathematics, physical or life sciences, and computer science will be in great demand. This research assessed employment trends and projections through 1995 by industry and occupation. The geographic locations of these high-technology industries and occupations are projected and supply-demand imbalance are identified.


This research developed a methodology to estimate and project the number of male high school graduates, 17-21 years old, that can be expected to qualify for military service. Use of the estimate by the Personnel Procurement Division of Headquarters, USMC is described.
MARKETING STRATEGIES


This report presents the results of a study conducted to determine the factors which affected the enlistment decision in 1969. Where applicable, the results of this survey were compared with those of the two previous Recruitment Surveys.


A series of studies was conducted relating off-duty educational programs to recruiting, performance and retention. The relationships were all high and positive in studies involving the opinions of recruits, current and past Navy Campus for Achievement (NCFA) program participants, Navy operational commands, Navy recruiters, and Navy wives.


To evaluate the effectiveness of the Navy's Recruiting Assistance Program (RAP) for recruiting the 19-23 year-old age group, a variation of RAP was designed that manipulated the age and type of participants, the number participating per recruiting station, and RAP utilization by recruiters.


Materials tailored to the interests of 19-23 year-olds were distributed to subscribers of five selected automobile and motorcycle magazines with a high proportion of readership in this age group. The direct mail campaign did not have a significant impact on enlistment rates and was not effective in appealing to the target population.


This report provided to the Navy recruiting community a listing of the civilian schools that are eligible for participation in a component of the Navy's Sea Air Mariner (SAM) Reserve Program directed toward the Hospital Corpsman (HM) rating.
APPLICANT SCREENING, TENURE AND PERFORMANCE PREDICTION


CAPER model provides an optimal recruiting-selection strategy for personnel decisions which minimizes the total cost of recruiting, selecting, inducting, and training a sufficient number of persons to meet a specified quota of satisfactory personnel.


This report provides a detailed explanation of the steps involved in utilizing the CAPER model with or without access to computer facilities. A FORTRAN II computer program, including detailed documentation, is presented. This program is designed for a small computer system.


The purpose of this report is to introduce a bivariate normal version of the model (CAPER II). This CAPER II model requires more statistical assumptions than the original model, but drastically reduces the work involved in input data preparation.


The cost of attaining personnel requirements (CAPER) model determines an optimal recruiting-selection strategy, providing information necessary to minimize the estimated total cost of recruiting, selecting, inducting, and training a sufficient number of persons to meet a specified quota of satisfactory personnel. The article describes the CAPER model and illustrates its application to a personnel recruiting selection problem.


This was a pilot study utilizing non-cognitive data sources in the prediction of satisfactory service in the Navy. A methodology was developed which enables a logical selection of subsets of categorical predictors to optimize the prediction of suitability for service. The results support the contention that non-cognitive factors are important and useful in prediction of success.


The original Odds for Effectiveness (OFE-1) was developed to identify those persons likely to render effective naval service. The purpose of this investigation was the development of a revised Odds for Effectiveness (OFE-2) table which would not require arrest information for enlisted applicants.

This report provides a detailed explanation of the steps involved in using the CAPER II model with, or without, access to computer facilities. A FORTRAN IV computer program including detailed documentation is presented.


A new screening instrument that could be used by Navy recruiters to estimate an applicant's probability of surviving the initial two years of service was developed and evaluated. Using this instrument, Prediction Of Enlisted Tenure (POET-2 Model) those applicants with a low probability could be screened out, resulting in a decrease in premature attrition.


Exploratory research was undertaken prior to developing a questionnaire for screening female applicants. Attrition factors were identified from interviews and research on turnover, mental health, sex roles, and vocational choice.


To reduce recruit training attrition, the Marine Corps had two training films developed. To evaluate the films' effectiveness in reducing attrition, platoons of Marine recruits were assigned to four treatment groups. There were no statistically significant differences in recruit training attrition among the treatment and control groups. Attrition rates among the individual platoons differed significantly.


Over a six-year period beginning in FY78 there was an increase in the number of enlistment waivers granted to Marine Corps accessions. The objectives of this effort were to 1) determine the source of the increase in waivers over these six years, and 2) assess the impact of this increase on premature separation from the Marine Corps.


The Delinquent Behavior Inventory (DBI) was designed to identify Navy applicants likely to display delinquent behavior, including illicit drug use while in the Navy. The DBI was administered to 2,500 Navy recruits during their first week of basic training in San Diego. Analysis showed a low positive correlation between the DBI items and basic graduation/attrition.
PERSON-JOB MATCHING


New methods and procedures for the lateral entry recruitment, or direct procurement, of petty officer personnel were developed. Comparisons for civilian occupations and training are comparable to that for several Navy Career Reenlistment Objective ratings.


This study investigated the occupational preferences of Marine recruits with regard to occupational fields other than those in aviation. The Marine Assignment Preference Schedule (MAPS), was administered to 850 Marine recruits. Analysis showed that the five most preferred military occupational fields as indicated by the recruits first choice were: Motor Transport; Military Police; Construction; Equipment and Shore Party; Utilities; and Infantry.


This study developed improved occupational information about Navy ratings and evaluated the revised materials. The Navy occupational handbook "Careers" was replaced by the new version called "Navy Ratings Review."


As a part of a program to develop computerized Navy techniques for recruit assignment, counseling, and testing, a computer-based occupational counseling system was developed, based on useful features of existing information retrieval systems. The system acquainted individuals with various civilian careers that they might want to explore, and also provided occupational information concerning various Navy ratings that are related to those civilian careers.


Navy recruiting needs in the areas of 1) screening, 2) vocational guidance, 3) assignment, and 4) a systems approach to personnel accessioning were assessed through interview, questionnaire, and literature search. Recommendations were made for the enhancement of the person-job matching functions at recruiting stations.

This report describes SELECT, a system designed to streamline the process of determining proper ratings and assigning pay grades to potential Navy lateral entry accessions.


The purpose of this research was to design, construct, and test a mathematical model for optimal assignment of Navy recruit applicants. Results showed that the CLASP personnel allocation system provides decision-makers with an improved tool for personnel classification and placement.


This research: 1) developed an attrition component for use in the CLASP model, and 2) evaluated its performance characteristics.


A minority fill-rate component for the Marine Corps program management module, which governs the allocation of recruits to enlisted programs guaranteed within the Automated Recruit Management System (ARMS) was developed and tested.


A fill-rate component was developed and tested for the Marine Corps program management module, which governs the allocation of recruit applicants to enlisted program guarantees within the Automated Recruit Management System (ARMS).


A Career Maturity Assessment (CMA) instrument to assist recruits in making career choices was developed. Following a review of the career maturity and vocational decision-making literature, a pilot version of the CMA was designed and constructed for eventual integration into a computerized vocational guidance system.


The report discusses the overall approach and design of a method for improving the assignment of Marine Corps enlistment program guarantees to recruit applicants.

This report details the preliminary investigation into the feasibility of using vocational aspirations in a vocational guidance system designed for military recruiting. The literature indicates that the predictive validity of vocational aspirations usually equals or exceeds the validity of an interest inventory.


This effort classified entry-level Navy ratings and Army military occupational specialties by the system most widely used for vocational counseling, the Holland coding system.


Research to develop an inventory of vocational interests according to Holland's theory of vocational personalities and work environments is reported with emphasis placed on the potential applications of such an inventory in a recruiting environment. This report describes the development of a 90-item vocational interest inventory that is suitable for use in military recruiting, the results of its cross-validation, and possible future research.

RECRUITING MANAGEMENT AND SUPPLY


This report describes development and field testing of job performance rating scales for the job of Navy recruiter. Over 800 critical incidents describing different facets of effective and ineffective recruiting performance were obtained from field recruiters and recruiter supervisors representing all Navy Recruiting Areas.


This research was a systems analysis of Navy recruiting, which investigated and documented Navy recruiting as a process that interacts with the larger military community of which it is a part and the civilian community which provides the raw materials it processes into accessions for the Navy.

This research developed a practical means of objectively measuring recruiter productivity. An equation was developed to predict productivity based on characteristics of the recruiter's geographic location and management policy. Using such an equation, production not under control of a recruiter could be isolated.


This study developed paper-and-pencil predictors of Navy and Marine Corps recruiter performance and evaluated their validity. Several measures of personality, vocational interests, and background were developed or selected and administered to a geographically representative sample totaling 329 Navy and 118 Marine Corps recruiters.


This report describes the development and validation of a battery of primarily paper-and-pencil instruments to identify those individuals most likely to become successful recruiters.


The Navy Recruiting Command (NRC) has developed and implemented three programs that use temporary recruiter assistants to aid recruiters in generating contracts and enlisting young persons in the Navy. Recruiting assistants were generally effective in generating recruiting contacts; participants have significant residual effectiveness in developing working relationships between recruiters and high school students and staff.


This research developed and evaluated a paper-and-pencil inventory battery to help identify officers with the personal characteristics necessary for successful recruiting duty.


This effort 1) assessed the potential for trial and implementation of a VG system by delineating the various restraining and driving forces, 2) highlight the general constraints under which a VG system will have to operate, 3) noted policy modifications that would be prerequisite to field testing or implementation, 4) made recommendations concerning future directions of research and development in the area of recruiting-oriented VG.

Two studies involving the SAB recruiter selection composite, and one study concerning the drill instructor selection score were undertaken. The results of these studies provided strong confirmatory evidence for earlier development work. Based on these findings, NPRDC recommended implementing SAB as one of the selection factors for assigning Marines to recruiting or drill instructor duty.


In this first phase of the Recruiter Survey Project, recruiters were interviewed in the field (at their recruiting stations). The data from these interviews were used to: 1) identify problems and issues, 2) develop a survey instrument, 3) conceptualize a recruiter work stress model, and 4) suggest steps toward improving recruiter work life.

COMPUTERIZED RECRUITING FUNCTIONS


This report provides an overview of the PJM and RMS subsystems. The applicant-oriented PJM functions would enhance the Navy's public image and increase the probability that applicants would enlist in the Navy and convince friends to visit the Navy recruiter. The RMS functions would save the recruiter time, reduce clerical error, and facilitate reporting.


The purpose of the NPAS project was to develop, test, and evaluate a distributed processing, Navy Personnel Accessioning Network. Computer-based personnel assessment and measurement techniques were to be integrated into system design to serve as a data base management and labor-saving device for the Navy Recruiting Command, assign recruits optimally to Navy ratings and reserve training school seats, provide individualized career information to applicants with fewer support personnel than at present, and improve job placement.


This research developed a demonstration version of the NPAS system, capable of running on a stand alone microcomputer, as a briefing model and a demonstration vehicle; and demonstrated the system to Navy Recruiting Command management to assist them in evaluation of its effectiveness in meeting the needs of Navy recruiting.

The CAST, which is capable of operating on a stand-alone microcomputer system in recruiting stations, was designed and developed to replace the Enlistment Screening Test (EST) currently in use. EST is used by all services; thus, as recruiting operations are automated, CAST has potential value to them all for reducing administrative and clerical burdens on the recruiter.


Five civilian and three military computerized vocational guidance (CVG) systems were considered and evaluated for their contributions to the design and development of a CVG system for use in military recruiting. It was recommended that a system specifically designed for the recruiting environment be developed.


To enable evaluation of CAST operations, psychometric characteristics, and predictive utility, a prototype system was developed for use in assessing the feasibility of using CAST with Army, Air Force, Marine Corps, Navy recruits. This report provides a user manual for administering personnel classification tests on the system.


A hardware and software system was developed for experimental administration of computerized aptitude tests to military personnel. This report contains the system documentation and user documentation.


This report summarizes the research and development accomplished by NPRDC in support of the first large scale application of computers to the recruiting and personnel testing process, the Army Joint Optical Information Network (JOIN) System.


This report details the development of an automated instrument to identify enlistment motives, for use on the Army's advanced computerized accessioning system, the Joint Optical Information Network (JOIN).

An existing pencil and paper measure, the Career Maturity Assessment (CMA) was validated on Navy recruits, using another existing measure, My Vocational Situation, as the criterion. A computerized version of the CMA, called Career Plans Checkup, was developed and validated on Navy recruits, with the CMA as the criterion. The measures were highly correlated. It was concluded that all three instruments measure the same construct, career maturity.


This document describes the development of a fast, computerized test of enlistment motivation suitable for use on the Army's Joint Optical Information Network (JOIN) system during applicant interviews.
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