1981-06

An analysis of the U.S. Navy enlisted separation questionnaire

Adams, Roger C.

AN ANALYSIS OF THE U. S. NAVY ENLISTED SEPARATION QUESTIONAIRE

Roger C. Adams

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

AN ANALYSIS OF THE
U.S. NAVY ENLISTED SEPARATION QUESTIONNAIRE

by

Roger C. Adams

June 1981

Thesis Advisor: R. S. Elster

Approved for Public Release; Distribution Unlimited

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) An Analysis of the U.S. Navy Enlisted Separation Questionnaire		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis June 1981 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Roger C. Adams		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE June 1981 13. NUMBER OF PAGES 98
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)

Approved for Public Release; Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

attrition
separation
retention
job dissatisfaction

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

This thesis reports a factor analysis of the U. S. Navy Enlisted Separation Questionnaire, using respondent data from the second quarter (January-March) of fiscal year 1980. The objectives and uses of this questionnaire by the Navy are discussed and the factor analysis methodology is developed. The questionnaire data are then analyzed, constrained originally to the initial categories used by the Navy, and then unconstrained as to a specific

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 68 IS OBSOLETE
S/N 0102-014-6601

(Page 1)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

number of factors. The relationship of the individual attitudinal dimensions to the composition of these factors is then discussed. The findings reconfirm the fact that perceptions concerning pay/compensation, family separation and job dissatisfaction are strongly related to the decision to leave the Navy.

Discriminant analysis, discriminating between those personnel given desirable reenlistment codes and those given undesirable reenlistment codes, was also performed. The results of these analyses reveal that the initial nine categories, used as the independent variables in the discriminant functions, have moderate discriminating potential. More importantly, the discriminant coefficients strongly support the significant loadings reported in the factor analyses.

Finally, it is concluded that the results from the Navy Enlisted Separation Questionnaire could be effectively described by three common factors rather than the nine categories currently used, and that redundancy in the items could be removed.

An Analysis of the U. S. Navy Enlisted Separation Questionnaire

by

Roger C. Adams
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1970

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1981

ABSTRACT

This thesis reports a factor analysis of the U. S. Navy Enlisted Separation Questionnaire, using respondent data from the second quarter (January-March) of fiscal year 1980. The objectives and uses of this questionnaire by the Navy are discussed and the factor analysis methodology is developed. The questionnaire data are then analyzed, constrained originally to the initial categories used by the Navy, and then unconstrained as to a specific number of factors. The relationship of the individual attitudinal dimensions to the composition of these factors is then discussed. The findings reconfirm the fact that perceptions concerning pay/compensation, family separation and job dissatisfaction are strongly related to the decision to leave the Navy.

Discriminant analysis, discriminating between those personnel given desirable reenlistment codes and those given undesirable reenlistment codes, was also performed. The results of these analyses reveal that the initial nine categories, used as the independent variables in the discriminant functions, have moderate discriminating potential. More importantly, the discriminant coefficients strongly support the significant loadings reported in the factor analyses.

Finally, it is concluded that the results from the Navy Enlisted Separation Questionnaire could be effectively described by three common factors rather than the nine categories currently used, and that redundancy in the items could be removed.

TABLE OF CONTENTS

LIST OF TABLES

I. INTRODUCTION

Retention of qualified personnel is a problem of major importance within the military and civilian community. With the advent of the All Volunteer Force the military services found themselves actively competing with civilian occupations for manpower, and the recruitment, attrition, and retention problems of the military became more like those within the civilian community. Attrition/retention decisions in the naval service are determined by a number of factors. Pre-service characteristics, demographic and social background as well as in service experiences such as career pattern, satisfaction and performance contribute significantly to the retention process. Retention of career oriented personnel within the Navy has become increasingly more important because of the economics of replacing those who leave after having attained high levels of training and operational expertise. For example, the replacement cost of a BT3 with one year service is $13,000. With four years service the costs jump to $53,000 [36].

In an interview with All Hands [1], the Chief of Naval Operations, (CNO), Admiral Thomas B. Hayward, stated:

> Absolutely, for the most part, although not exclusively, the solution to the loss of so many of our best people is money. Too many Navy men and women are just not being adequately compensated for the demanding and highly professional jobs which our country calls upon them to do. No one should expect to have to add the strain of making ends meet to the other demands which Navy life puts upon our people and their families ...

The Admiral's position is supported by many, both within and outside the defense establishment. The April 1978 Report of the President's Commission on Military Compensation [2], stated:

> Since the switch to an All Volunteer Force in 1973, the nation's supply of military manpower has become more dependent on the conditions of the labor market place ... to attract and retain personnel, changes in compensation policies and personnel management become necessary to enable the services to compete effectively with private and other employers.

Such variables as pay, marital status, aptitude scores and education regularly predict retention behavior. An area that has not been adequately studied is that of the organizational factors that tend to influence reenlistment decisions. In the Navy, personnel loss is usually addressed in one of two ways: attrition or first term loss of enlisted personnel prior to the end of their obligated service and retention, the Navy's ability to keep people beyond their initial obligations [3].

Retention rates for enlistees are usually expressed as the percentage of those eligible to reenlist who actually do so. These rates are computed on the basis of first, second, third or more reenlistments. In the past the reasons for leaving after having served obligated tours were not systematically coded and recorded, rather what we knew about this form of "turnover" was based on exit interviews, surveys and other similar forms of self-reporting. To correct this problem, the Chief of Naval Personnel initiated action in August 1977, tasking the Navy Personnel Research and Development Center (NPRDC),

San Diego, to develop a study to create a Separation Interview Form for use as an indicator of the underlying reasons for members leaving the Navy. The development of this form will be addressed in another section of this paper [4, 5].

The purposes of this research are to review the development of the Navy's process to collect separation data from enlisted personnel, conduct an analysis of the format by which it is initially broken down and reviewed by the Deputy Chief of Naval Operations for Manpower, Personnel and Training (OP-01) and more specifically by the Director, Military Personnel and Training Division, Office of the Chief of Naval Operations (OP-13), and briefly analyze the responses given to the questionnaire by enlisted personnel voluntarily separating from the Navy.

II. STUDIES IN ENLISTED RETENTION

In testimony given to the 96th Congress, Vice Admiral Robert B. Baldwin, then Deputy Chief of Naval Operations for Manpower, Personnel and Training, indicated the Navy was 20,000 petty officers short of the requirements for a force strength of 460,000 personnel [6]. Because of this shortage of key personnel, referred to as "careerists," the Navy has pursued the manning of ships with a personnel policy that essentially fills an empty billet with a man whose rank is either one up or one down from that required for the billet when a man of the actual rank is unavailable [7]. In general, the billets are filled with personnel of a lower paygrade [7]. The manning of highly technical and sophisticated equipment by personnel who have less operational experience and limited formal training tends to create some doubt as to the qualifications of the available pool of manpower.

Complicating the problem of having sufficient numbers of petty officers to man the ships and aircraft is a trend of declining retention not only by the first term enlisted personnel, but also among those personnel considered as careerists [8]. This decline in the retention of the careerists not only helps explain the shortage of petty officers in the force, but also illustrates the driving force behind the high number of junior petty officers in the Navy [9]. This leaves a significant gap of experience that the Navy attempts to fill with personnel of less training and experience [8].

The attrition rate of first term enlisted personnel in 1979 was twenty-eight percent and the first term reenlistment rate was thirty-seven percent of those eligible [10]. Assuming a first term eligible to reenlist percentage of 80 percent, a figure higher than historical trends [11], the number of personnel reenlisting at the end of the first enlistment is 21.3 per 100 initial enlistees. As a consequence of the high attrition rates and relatively low reenlistment rates, first term and career, the Navy must recruit six personnel in order to create one E-6 petty officer with eight to nine years of service [11]. If the Navy is to improve its level of operations, the experience and expertise of its personnel must be increased and maintained at the highest level.

The impact of lower retention has been dramatic. The readiness of the Navy has been declining and will continue to decline at an increasing rate unless the experience and expertise of the personnel manning the ships and aircrafts are improved. In testimony before Congress, the CNO, Admiral Hayward, stated:

> ...too many of our most talented people... continue to vote with their feet, and the downward spiral of unit readiness which we already find alarming will defeat our best efforts... [12].

High turnover wastes training investments and reduces organizational effectiveness. Studies of retention within the military services generally tend to attempt to identify characteristics of those who do or do not reenlist or to

identify conditions that influence decisions to reenlist. Organizational factors reported to influence reenlistment decisions include attitudes toward environmental conditions, organizational policies and practices, leader behavior and specific aspects of an individual's job [20].

Greenberg and McConeghty [13], in a study using data from 1000 enlisted and 100 officers, utilized multiple regression analysis to distinguish between attriters and nonattriters. The findings, among recruits, indicate that attriters: 1) believed that they would be harrassed if they complained (this variable accounted for 12 percent of variance in the attrition criterion), 2) less often participated in a delayed enlistment program (four percent of the variance), and 3) less often have fathers who are employed in higher level positions, such as managers (four percent of the variance).

Guthrie [14], using an experimental group of 1152 and a control group of 1960 Navy men, studied a voluntary release program intended to expedite discharges of unproductive (or unsuitable) personnel and to reduce disciplinary problems. The experimental group was permitted to separate voluntarily from the Navy within the first six months, whereas the control group was expected to meet the usual conditions for discharge from the Navy. The experimental group had a higher attrition rate, higher average performance and fewer discipline problems.

Enns [15], using FY1971 data, with a sample of 1938 Navy, Air Force and Army reenlistees, developed a regression model to estimate first term reenlistment rate. The independent

variables in the Navy sample were the variable reenlistment bonus (VRB), basic pay, age, race, Armed Forces Qualification Test (AFQT) scores and education. The statistically significant predictors which included the VRB, base pay (negative coefficient), race, AFQT (negative coefficient) and education (negative coefficient). The prediction equation accounted for 25 percent of the variance in the reenlistment rate.

Haber and Stewart [16] compared Navy reenlistment rates in 1971 and 1972. The study assumed comparable civilian earnings remained constant during the same period. The general findings indicate that a one percent pay increase resulted in a three percent increase in reenlistment rates for about one half of the sample. Occupational groups without VRB had reenlistment rates which changed 10.6 percent to 14.7 percent. Those with VRB went from 20.4 percent to 27.3 percent.

Kleinman and Shughart [17] found, using a linear regression model, that the variable reenlistment bonus accounted for 52.1 percent, 35.4 percent and 43.3 percent of the variance in first-term reenlistment rates for FY 1965-69 and FY 1971-72 respectively.

Glickman, Goodstadt, Korman and Romanczuk [21] interviewed five Navy men each in three ratings and in four time periods of service ranging from six weeks to forty-five months. Factors affecting positive motivation towards retention were measured as percentages of the people mentioning the factor.

Positive factors included training (36 percent), security (13 percent), travel (11 percent), and pay and benefits (11 percent). Negative factors included separation (64 percent), loss of freedom (51 percent), long hours/low pay (33 percent), and poor leadership (42 percent). A 1973 study by Holoter, Bloomgren, Dow, Provenzano, Stehle and Grace surveyed attitudes of 1711 Navy enlisted personnel [21]. Their general findings reflected minimum impact by career counseling on the decision to reenlist. A significant positive factor was the influence of the variable reenlistment bonus.

Stoloff, Lockman, Allbritton, and McKinley [11] conducted a study aboard Navy ships to determine how psychological, economic, and demographic variables affect retention intentions. Using response frequencies in analyzing the data, they found retention decisions were most often related to: pay, fringe benefits, advancement, duties and retirement. On the other hand, the decision to separate from the service was most often related to: military way of life, family separation, leadership and compensation.

Stoloff [11], in a study of 3,594 first term enlisted personnel, looked at retention behavior and performance on the job. He identified forty-four independent variables that dealt with job content and job climate. His study found that living conditions and job environment were essential elements in the decision process.

Perhaps the most valuable review of the literature pertaining to military retention is the work completed by Hand,

Griffeth and Mobley in 1977 [21]. Their publication, "Military Enlistment, Reenlistment and Withdrawal Research: A Literature Review," provides a critical look at items such as the various incentives, organizational practices, organizational climate variables, demographic variables, and how those variables relate to retention.

Two methods are commonly used in examining the reenlistment/retention behavior of enlisted personnel. First is survey research and second is statistical modeling of the reenlistment/retention decision using economic and biographic variables as predictors. The latter is normally accomplished using multiple regression or discriminant analysis. Examples of both types of analysis are studies prepared for the President's Commission on an All Volunteer Armed Force [22], Attergott's [23] study dealing with factors affecting the retention behavior of first term enlisted personnel and Bradley's [8] predictive model of Navy career enlisted retention utilizing economic variables. Survey data bring into view the non-monetized aspects of the decision process, and are therefore useful. This thesis reviews the development and use of survey data by Navy decision makers to create the positive policy/organization changes required to turn the trend of Navy enlisted retention upward.

III. DATA DEVELOPMENT

The U. S. Navy Enlisted Separation Questionnaire (ESQ) consists of thirty items or "reasons for leaving" presented on an optically scannable one page (two sided) sheet, a copy of which is provided in Appendix A. The questionnaire is currently being administered at all commands processing the separation of enlisted personnel other than retirees.

The thirty questions were selected on the basis of two previous studies. The first was the analysis of item characteristics from earlier surveys administered to personnel leaving the service. The second study was a content analysis of a special survey conducted by W. H. Githens of NPRDC, San Diego, of personnel separating in the first half of 1977. Responses from this special survey were obtained from the open-ended question: "Why are you separating"? [5, 18, 19].

The number of final items selected was constrained by the desire to use an optically scorable form. Furthermore, in an effort to reduce the time consuming task of matching individual responses with demographic data, the basic background data were requested on the form itself. Space on the form for information such as rating, paygrade, NEC, marital status, education, duty station and other geographic and administrative data limits the questionnaire to one side of the page.

To facilitate interpretation and assure content coverage with a limited number of items, the thirty items were kept as

mutually exclusive as possible. A five point response scale is used to measure the relative importance of each item as a reason for leaving the service. The questionnaire was initially administered from November 1978 to February 1979 to 1,263 enlisted personnel separating from the Navy. This administration was used as part of the test and evaluation of the questionnaire and its associated computer programs for scoring and analysis. The form was initially incorporated within the procedures in use at the time at the San Diego separation center. All of the answer sheets were returned to NPRDC where they were reviewed, scored, verified and entered onto computer tape. Use of the form was expanded at the start of fiscal year 1980 by administering it at six separation centers, three on the east coast and three on the west coast. Approximately 8,000 personnel were administered the questionnaire during fiscal year 80 [18]. A summary of these data are included as Appendix B. The questionnaire was introduced Navy-wide commencing with fiscal year 1981 via OPNAV Instruction 1040, a copy of which is included in Appendix A.

The stated goal of the Navy is to use the information furnished by this questionnaire to develop statistical studies to help the Navy improve and develop personnel related policies and procedures. The primary user of the questionnaire data is OP136D, the enlisted retention office of OP-13. Their initial organization of the data is by the following nine general categories or factors:

1. Leadership
2. Assignment
3. Regulation/Administrations
4. Off Duty Life (Family Separation)
5. Fringe Benefits
6. Education
7. Quarters
8. Pay
9. Associates/Peers

The individual category labels were developed by content analysis of the items selected for use on the questionnaire. Each of the thirty questions is assigned to one of these factors. Attitudes toward leadership, for example, are sampled by six questions, while pay and associates are each functions of a single question. Each broad category is displayed in a data summary by listing each component question and the number and percentage of responses for each of the five levels of response. Within these levels, "five" is most important and "one" is least important. From this, a value for the mean and standard deviation for each question is developed. On this basis, each question is ranked from one to thirty (using the mean responses) relative to its self-reported impact on the decision to separate. The raw data are classified in a number of ways, from total Navy data for the calendar quarter, to tables controlled for reenlistment codes RE-R1 and RE-1 by major claimant (PAC FLT, LANT FLT),

marital status, sex, number of reenlistments, assignment type (i.e., ship type), and duty type (sea, shore). From the data presented on the computer run, summary data are developed reflecting the top ten responses. The data are broken down by all Navy, first, second, third term enlistments, and by male/female [18]. Appendix B provides an example of how the data are tabulated for review within the OP-01/OP-13 organization.

The primary objective of this thesis is to subject the questionnaire items to factor analysis to see if the items could be simplified to a small number of dimensions which the users see as distinct and unambiguous. Discriminant analysis of the data will be conducted to evaluate scores on the nine categories as predictors of which reenlistment code group each individual fell into. Data collected during the second quarter of fiscal 1980 (January-March) are used for the analysis presented in following chapters.

IV. FACTOR ANALYSIS

This chapter presents background information concerning factor analysis and discusses most of the methodology used in this study. Factor analysis is a statistical technique formulated by psychologists at the turn of the century to provide mathematical models for the development of psychological theories of human ability and behavior [24, 25]. Because of its origin and extensive use in psychology, it is often regarded as a psychological method, but it has been adapted for use in other areas where numerous interacting measurements are obtained. Its use has greatly expanded as a consequence of the development of high-speed electronic computers.

Since the primary objective of this study is to subject the U. S. Navy Enlisted Personnel Separation Questionnaire to factor analysis, rather than to either develop or illustrate factor analysis itself, the technique will not be described in great detail. For a more thorough discussion of the technique, the reader is directed to any of the references listed, especially the one by H. H. Harman [25].

It should also be noted at this point that the Statistical Package for the Social Sciences (SPSS) computer program FACTOR was used in this analysis, so the reader does not require the computational details to either achieve or understand the results. A general understanding of the technique is, however, helpful.

A. OBJECTIVES OF FACTOR ANALYSIS

The primary objective of factor analysis is to obtain a parsimonious description of observed data. Harman [25] sees it as a technique to resolve a set of variables into a small number of elements called factors. Resolution is accomplished by the analysis of the correlation between the variables. Factor analysis, then, is essentially a linear regression of each of the variables on the factors. It yields factors which provide an adequate fit to the data while maintaining the essential information of the original set of variables.

B. THE FACTOR ANALYSIS - MODEL

It is the object of factor analysis to represent a variable V_i in terms of several underlying factors, or hypothetical constructs. Several types of factors may be distinguished [26]:

1. Common Factors
    a. General factor: present in all variables;
    b. Group factor: present in more than one, but not all, variables;
2. Unique Factors: present in only a single variable.

Common factors account for the intercorrelations among the variables, while each unique factor represents that portion of a variable not attributable to its correlations with other variables of the set.

The simplest mathematical model for describing one variable in terms of others is a linear one, and that is the form of

representation used in factor analysis models. Using the notation F_1, F_2, F_3, ..., F_m for m common factors, the complete linear expression for any variable V_i may be written in the form:

$$(4\text{-}1) \qquad V_i = a_{i1}F_1 + a_{i2}F_2 + a_{i3}F_3 + \ldots + a_{im}F_m$$

where i + 1,2,..., N and a_{ij} is the coefficient of the j^{th} factor of the i^{th} variable [25]. There are, of course, n equations of this form -- one for each of the n variables. Some models also include a term a_iu_i which denotes the unique aspect of any variable -- i.e., that portion of its variance which is not attributable to any common factor. Since factor analysis in general is concerned primarily with the common factors, the unique term will not be included in the model used herein.

C. FACTOR LOADING AND COMMUNALITY

The coefficients a_{ij} in equation (4-1), also called factor loadings, can be determined through an analysis of the correlations among the n variables [24, 25 27]. All m factors are required to reproduce the correlation among the original n variables, and each factor, through its loading, is selected to make maximum contribution to the sum of the variance of the original variables. The first such factor selected makes the greatest single contribution; the second makes a maximum contribution to the remaining variance, and so on until a satisfactory portion (usually less than 100 percent) of the total original variance has been accounted for. Thus,

depending on the amount of variance which will give a satisfactory and acceptable solution, only a small number (less than n) of factors will be needed to reproduce the original data.

For any particular variable, the amount of its total variance accounted for by the common factors is called its communality [25, 26]. Quantitatively, the communality of a variable is given by the sum of the squares of the common-factor coefficients, V_{12}.

$$(4\text{-}2) \qquad h_i^2 = a_{i1}^2 + a_{i2}^2 + a_{i3}^2 + \ldots + a_{in}^2$$

where h_i^2 is the communality of the i^{th} variable V_i and the a_{ij} are its factor coefficients [25].

The residual variance (one minus the communality) describes the extent to which the variable's variance is unique. It should be noted that although the communality can be increased by simply increasing the number of common factors extracted from the set of variables, this is not, in general, desirable. Parsimonious description of the data requires that the number of factors be kept to a minimum [28].

Factor analysis techniques require communality estimates as inputs. Successive iteration then leads to the final correct communality values. Making the original estimate, however, can sometimes pose a difficult problem. There are three principal and commonly used estimating techniques [25, 27]. They are:

1. Set the original communality estimates equal to one for all of the variables -- i.e., assume that all of the variables will be accounted for by the factors selected.

2. Use the squared multiple correlations as the communality estimates.

3. Use the maximum row values of the correlation matrix as the communality estimates.

These three techniques are discussed in detail by Harman [25] and others. Each technique is claimed to have considerable merit in a variety of circumstances.

Having determined the communalities, it is then possible to calculate the factor coefficients, or loadings. The most frequently used technique (principal-component) begins by choosing a set of factors in decreasing order of their contribution to the total communality. The analysis is begun by extracting a factor, F, whose contribution to the communalities of the variables is as great as possible. Then, the first-factor residual correlations are obtained. A second factor, F_2, with a maximum contribution to the residual communality is next found. This process is continued until the total communality has been analyzed [28].

The first-factor coefficients a_{i1} are selected to maximize the sum of the contributions of that factor to the total communality. For the first factor, F_1, this sum is given by:

$$(4\text{-}3) \qquad C_1 = a_{11}^2 + a_{21}^2 + a_{31}^2 + \ldots + a_{n1}^2$$

The coefficients a_{i1} in equation (4-3) must be chosen so as to maximize C_1 under the constraint (for m factors):

$$(4\text{-}4) \qquad r_{ik} = \sum_{p=1}^{m} a_{ip}a_{kp} \quad (i, k = 1,2,3 \ldots, n)$$

where $r_{ik} = r_{ki}$ and r_{ii} is the communality of variable V_i (i.e., $r_{ii} = h_i^2$). The constraint condition (4-4) says that the

reproduced correlations are to be replaced by the observed correlations, implying the assumption of no unique variance (i.e., zero residual error) [25, 27]

Maximization of this function (4-3) of n variables, constrained by $\frac{1}{2}n\,(n+1)$ conditions (4-4), is greatly facilitated by the method of Lagrange multipliers, which may be applied as follows: define the Lagrangian function (L) such that

$$(4\text{-}5) \qquad 2L = C_1 - \sum_{i,k=1}^{n} u_{ik} r - C_1 - \sum_{i,k=1}^{n} \sum_{p=1}^{m} u_{ik}\, a_{ip}\, a_{kp}$$

where the u_{ik} $(=u_{kl})$ are the Lagrange multipliers. Through further mathematical manipulation using partial derivatives, one develops a system of n equations.

$$(4\text{-}6) \qquad \sum_{X=1}^{m} r_{1k} a_{kl} - \lambda_1 a_{il} = 0 \quad (i = 1,2,\ldots,n)$$

Recalling that $r_{ii} = h_i^2$ and dropping the subscript of 1 for convenience one can refine the system as follows:

$$(4\text{-}7) \qquad \left\{ \begin{array}{l} (h_1^2 - \lambda)\, a_{11} + r_{12} a_{21} + \ldots + r_{1n}\, a_{n1} \\ r_{21} a_{11} + (h_2^2 - \lambda)\, a_{21} + \ldots + r_{2n}\, a_{n1} \\ \ldots \quad + \quad \ldots \quad + \quad \ldots \quad + \quad \ldots \\ r_{n1} a_{11} + r_{n2} a_{21} + \ldots + (h_n^2 - \lambda)\, a_{n1} \end{array} \right\} = 0$$

Expansion of this determinant results in an n^{th} order polynomial in λ, known as the characteristic equation (of the system). The polynomial has a family of solutions, all of which are proportional to one particular solution, with the factor of proportionality given by

$$\lambda_1 = \sum_{i=1}^{n} a_{i1}^2$$

From equation (4-5) it can be seen that this is the quantity to be maximized therefore the maximizing solution to C_1 is the largest root of the characteristic equation. To find the coefficients of the first factor (F_1) which will account for the maximum amount of communality, the value of λ_1 is now substituted in the set of equations (4-7) and any solution $\alpha_{11}, \alpha_{21}, \ldots, \alpha_{n1}$ is obtained. To satisfy the conditions of equation (4-3), these values are divided by the square root of the sum of their squares and multiplied by $\sqrt{\lambda_1}$. The resulting quantities are the desired coefficients of F_1 in the factor pattern (4-1):

$$(4\text{-}8) \qquad a_{i1} = \frac{\alpha_{i1}\sqrt{X}}{\sqrt{\alpha^2_{11} + \alpha^2_{21} + \ldots + \alpha^2_{n1}}}$$

where i - 1,2, ..., n. In the literature of mathematics, the roots (λ's) of the characteristic equation are called eigenvalues [25].

The coefficients of the remaining factors, accounting for a maximum amount of the residual communality, can be extracted from the residual correlation by:

$$(4\text{-}9) \qquad r^1_{ik} = r_{ik} - a_{i1}a_{k1}$$

and maximized in quantity:

$$(4\text{-}10) \qquad C_2 = a^2_{12} + a^2_{22} + \ldots a^2_{n2}$$

subject to the constraint of (4-9) [25, 27]. Iteration of the method of Lagrange multipliers yields λ_2, the second largest eigenvalue, as the maximizing value of C_2 [25].

The second-factor coefficients are then determined as above. Successive iteration of this procedure will eventually produce the complete set of factor coefficients, or loadings.

D. FACTOR ROTATION

Once a set of factor loadings has been calculated, the next step in the analysis is to interpret the factors in a way that will give a meaningful summary of the observed data. Since the factor loadings are produced in an arbitrary frame of reference, the problem is to choose a reference frame for the factor loading points which will give the most meaningful and most useful interpretation [25, 27]. To this end, the arbitrary frame of reference may be rotated to one more suited to interpretation. There are numerous rotational techniques and criteria from which to select. Thurstone [24], for example, has specified his criteria for a simple structure which ideally would result in a relatively unique configuration of factor loadings and a relatively standard location for the reference frame. As pointed out by Morrison [30], however, the problem with these criteria is that they rarely can be fulfilled when using real data. For simplicity, rotational techniques can be grouped into two broad classes: orthogonal and oblique [28]. Orthogonal rotation is not suitable for all data, but it has a key advantage: when the resulting factors are orthogonal, they are uncorrelated (independent) which facilitates interpretation. Varimax orthogonal rotation was developed by Kaiser [28, 29] in 1958 to allow actual data

to meet Thurstone's simple structure criteria as closely as possible. This rotational technique was used in this study.

E. FACTOR SCORES

From a theoretical point of view, the common factors have a more fundamental importance than observed variables themselves, and it is therefore necessary to relate the observations to the common factors [25, 27]. This is done by means of factor scores, which are a means of expressing quantitatively the information contained in a factor for a specific case or individual. Through factor scores, the difference between two cases can be expressed in terms of the reproduced correlations of the original data.

The computation of a factor score is based on the factor loadings. When using ones on the main diagonal of the correlation matrix, as was done in this study, the principal-factor solution may be expressed in matrix notation as follows:

$$V = AF \tag{4-11}$$

where $V = n \times 1$ column vector variables,

$A = n \times n$ matrix of factor loadings, and

$F = n \times 1$ column of factor scores.

The factor scores are then given by [25, 27, 28]:

$$F = A^{-1}V \tag{4-12}$$

F. FACTOR INTERPRETATION

After the factor loadings and factor scores have been determined, there remains only the task of interpretation. A complete solution requires an identification of the nature and

content of the hypothetical factors. Fruchter [27] indicates that this is commonly done by inferring what the variables with higher loadings on a factor have in common that is present to a lesser degree in variables with moderate or low loadings and absent from variables with zero (or near zero) loadings. He further defines an arbitrary classification scheme for factor loadings as follows:

1. Insignificant: factor loading below 0.2
2. Low: factor loading of 0.2 to 0.3
3. Moderate: factor loading of 0.3 to 0.5
4. High: factor loading of 0.5 to 0.7
5. Very High: factor loading of above 0.7

Fruchter's classification scheme is admittedly arbitrary; however, this phase of a factor analysis is somewhat subject to the desires and experience of the analyst. There is quantitative justification for his scheme. In linear regression, the square of the correlation coefficient indicates the proportion of the total variance explained by the regression [24]. Thus, a factor loading of 0.7, which separates the "high" and "very high" classification, corresponds to a level of correlation between the variable and factor in which nearly one-half of the observed variance has been explained.

A factor loading value of 0.5 will therefore be adopted in this study as being indicative of a "significant" correlation between variable and factor. Therefore, factor loadings of 0.5 or greater will be used in interpreting the results of the factor analysis.

V. ANALYSIS AND DISCUSSION

As discussed earlier, attrition and retention decisions by enlisted personnel in the naval service are determined by a number of factors. Pre-service individual, demographic and social background variables, as well as in service experiences such as career pattern, satisfaction and performance, contribute significantly to the retention decision process [20]. Table 1 displays the specific background data collected by the Enlisted Separation Questionnaire (ESQ) for the second quarter of fiscal year 1980. Of note is the lack of any question regarding the race of the respondent. This omission was based on the decision that an indication of race is not relevant to the purpose of the questionnaire [19]. If that knowledge becomes necessary, a match up by social security number with the Enlisted Master Record, where race is recorded, can be accomplished.

Each of the thirty items to be responded to on the ESQ has been assigned to one of the nine original categories discussed in Chapter III. Table 2 presents each individual item by its mean, standard deviation, and its individual ranking (by means) among the thirty items. The nine categories and the individual items assigned to them are shown in Table 3. The values computed for the nine original categories were achieved by simple arithmetic averaging of the means of those items comprising that category. Tables displaying the relationship of these nine categories with various items of background information are provided as Appendix C.

TABLE 1

CHARACTERISTICS OF RESPONDENTS TO THE NAVY ENLISTED SEPARATION QUESTIONNAIRE: SECOND QUARTER FY80

Marital Status	N	%	Sex	N	%
Single	1073	55.6	Male	1795	93.0
Married	614	31.8	Female	96	5.0
Divorced	56	2.9	Unspecified	40	2.1
Other	188	9.7			

Education-Degrees	N	%	Duty Class	N	%
None	286	14.8	USN	1646	85.2
H.S.	1429	74.0	USNR	251	13.0
A.A.	39	2.0	Unspecified	34	1.8
B.A.	8	.4			
Graduate	3	.2			

Number of Re-Enlistments	N	%	Re-Enlistment Code a	N	%
0	1424	73.7	RE-R1	441	22.8
1	257	13.3	RE-1	498	25.8
2	34	1.8	RE-3P	74	3.8
3	28	1.5	RE-3R	154	8.0
4	24	1.2	RE-4	602	31.2
5	5	0.3	Other	162	8.4
6	2	0.1			
Unspecified	157	8.1			

N of cases - 1931

[a] Reenlistment codes [31]:

RE-R1 - Recommended for preferred reenlistment
RE-1 - Eligible for reenlistment
RE-3P - Physical disability (includes discharge and transfer to Temporary Disability Retirement List)
RE-3R - Eligible for a probationary two year reenlistment
RE-4 - Not eligible for reenlistment

TABLE 2

GENERAL FREQUENCY STATISTICS
OF INDIVIDUAL ESQ ITEMS: SECOND QUARTER FY80

ITEMS		MEAN [a]	STD DEV	RANK
Q1.	Working hours are too long	2.32	1.54	18
Q2.	Fear of losing more fringe benefits	2.43	1.67	14
Q3.	Senior officers don't care about enlisted people	2.74	1.70	9
Q4.	Not being treated with respect	2.90	1.74	4
Q5.	Poor berthing areas afloat	2.75	1.80	8
Q6.	Poor quality of dental care	1.75	1.41	29
Q7.	Too many petty regulations	3.03	1.78	3
Q8.	Work I'm assigned doesn't use my educational skills	2.43	1.74	15
Q9.	Poor leadership of my work center supervisor	2.41	1.72	16
Q10.	Little freedom to use non-work hours as I want	2.25	1.66	19
Q11.	Pay is too low	3.43	1.81	1
Q12.	Lack of recognition for doing a good job	2.83	1.73	6
Q13.	BAQ inequity between married and single personnel	1.69	1.36	30
Q14.	Fear of losing retirement benefits	1.84	1.52	26
Q15.	I want to live someplace permanently	2.83	1.82	5

TABLE 2 (con't)

ITEMS		MEAN	STD DEV	RANK
Q16.	Dislike family separation	3.05	1.88	2
Q17.	Can't get the education or skills that I want	2.55	1.76	12
Q18.	Too much unfair treatment	2.82	1.76	7
Q19.	Poor quality of Commissary/Exchange	1.79	1.38	28
Q20.	Can't get into the rating I want	1.83	1.59	27
Q21.	Poor quality of medical care	2.08	1.59	24
Q22.	Not enough chance to do job my way	2.14	1.54	21
Q23.	Dislike sea duty	2.73	1.86	10
Q24.	Navy housing not available or of poor quality	2.07	1.67	25
Q25.	Can't get the detailing desired	2.21	1.67	20
Q26.	Dislike the kind of people I must work with	2.11	1.61	23
Q27.	I want to be able to quit anytime I want	2.13	1.66	22
Q28.	Regulations keep me from advancing faster	2.32	1.72	17
Q29.	To keep from losing GI benefits	2.48	1.81	13
Q30.	Not enough chance to do more interesting/challenging work	2.65	1.74	11

[a] Means based on responses to a five point scale, where 1 = no importance and 5 = very important

TABLE 3

GENERAL FREQUENCY STATISTICS
BY CATEGORY COMPOSITION FOR SECOND QUARTER FY80

ITEM	MEAN [a]	STD DEV	ITEM'S RANK IN CATEGORY	CATEGORY RANK
1. LEADERSHIP	2.64	1.42		2
Q3. Senior officers don't care about enlisted people	2.74	1.70	4	
Q4. Not being treated with respect	2.90	1.74	1	
Q9. Poor leadership of my work center leadership	2.41	1.72	5	
Q12. Lack of recognition for doing a good job	2.83	1.73	2	
Q18. Too much unfair treatment	2.82	1.76	3	
Q22. Not enough chance to do job my way	2.14	1.54	6	
2. ASSIGNMENT	2.37	1.32		6
Q8. Work I'm assigned doesn't use my educational skills	2.43	1.74	3	
Q20. Can't get into the rating I want	1.83	1.59	5	
Q23. Dislike sea duty	2.73	1.86	1	
Q25. Can't get the detailing desired	2.21	1.67	4	
Q30. Not enough chance to do more interesting/challenging work	2.65	1.74	2	
3. REGULATIONS/ADMINISTRATION	2.49	1.44		5
Q7. Too many petty regulations	3.03	1.78	1	

TABLE 3 (con't)

ITEM	MEAN [a]	STD DEV	ITEM'S RANK IN CATEGORY	CATEGORY RANK
Q27. I want to be able to quit anytime I want	2.13	1.66	3	
Q28. Regulations keep me from advancing faster	2.32	1.72	2	
4. QFF DUTY LIFE	2.61	1.39		3
Q1. Working hours are too long	2.32	1.54	3	
Q10. Little freedom to use non-work hours as I want	2.25	1.66	4	
Q15. I want to live someplace permanently	2.83	1.82	2	
Q16. Dislike family separation	3.05	1.88	1	
5. FRINGE BENEFITS	1.98	1.67		9
Q2. Fear of losing more fringe benefits	2.43	1.67	1	
Q6. Poor quality of dental care	1.75	1.41	5	
Q14. Fear of losing retirement benefits	1.84	1.38	4	
Q19. Poor quality of Commissary/Exchange	1.79	1.38	4	
Q21. Poor quality of medical care	2.08	1.59	2	
6. EDUCATION	2.52	1.54		4
Q17. Can't get the education or skills that I want	2.55	1.76	1	
Q29. To keep from losing GI benefits	2.48	1.81	2	

TABLE 3 (con't)

ITEM	MEAN [a]	STD DEV	ITEM'S RANK BY CATEGORY	CATEGORY RANK
7. QUARTERS	2.07	1.28		7
Q5. Poor berthing areas afloat	2.75	1.80	1	
Q13. BAQ inequity between married and single personnel	1.69	1.36	3	
Q24. Navy housing not available or of poor quality	2.07	1.67	2	
8. PAY	3.43	1.80		1
Q11. Pay is too low	3.43	1.81	1	
9. ASSOCIATES	2.11	1.61		8
Q26. Dislike the kind of people I must work with	2.11	1.61	1	

[a] Means based on responses to a five point scale, where 1 = no importance and 5 = very important.

A. FACTOR ANALYSIS OF THE ORIGINAL NINE CATEGORIES

The first step in the factor analysis of the complete data set was to analyze the data using the SPSS subprogram FACTOR, and specifying the number of factors desired to be analyzed. The initial analysis specified nine factors because nine categories are used by OP-13 personnel in interpreting the data from the questionnaire. From the varimax orthogonal rotation of the nine factors it was observed that factor one accounted for 79.2 percent of the common variance, and the first three factors together accounted for 89.4 percent of the variance.

Since factor analysis is essentially an analysis of the correlation between variables, a logical starting point is an examination of the correlation matrix, reproduced in Table 4. This table shows the correlations between all possible pairs of variables. It shows a wide range of correlations, from 0.25 to 0.74, and reveals that there is, in fact, a high correlation between some of the variables. It does little, however, to highlight a pattern which might reveal any underlying factors. The most essential and useful information is contained in the matrix of factor loadings, shown in Table 5. The nine factor loadings for each of the original categories are shown in Table 6.

Using the criterion previously established of high (.5 to .7) and very high (> .7) factor loadings being significant, Table 5 shows that the following ESQ items have significant loadings on the first factor:

TABLE 4

ENLISTED SEPARATION QUESTIONNAIRE
ITEM CORRELATION COEFFICIENT MATRIX

	01	02	03	04	05	06	07	08	09	010
Q1	1.00000	0.47572	0.55414	0.55325	0.53745	0.40578	0.54356	0.44531	0.44785	0.58623
Q2	0.47572	1.00000	0.49254	0.50053	0.47292	0.45495	0.45799	0.43133	0.41918	0.43274
Q3	0.55414	0.49254	1.00000	0.73509	0.57587	0.49378	0.62146	0.53500	0.55072	0.53955
Q4	0.55325	0.50053	0.73507	1.00000	0.60543	0.48917	0.85483	0.59109	0.62225	0.57557
Q5	0.53745	0.47292	0.57587	0.60543	1.00000	0.46658	0.58113	0.45100	0.46321	0.52307
Q6	0.40578	0.45495	0.49378	0.48517	0.46656	1.00000	0.44731	0.48711	0.44824	0.49840
Q7	0.54356	0.45759	0.62146	0.65063	0.58113	0.44731	1.00000	0.56847	0.55362	0.57278
Q8	0.44531	0.43133	0.53500	0.59109	0.49100	0.48711	0.56847	1.00000	0.54407	0.51127
Q9	0.44789	0.41915	0.55072	0.62225	0.46321	0.44824	0.55362	0.54407	1.00000	0.53826
Q10	0.58823	0.43214	0.53955	0.57557	0.52307	0.49846	0.57279	0.51127	0.53826	1.00000
Q11	0.57888	0.57403	0.60394	0.63208	0.59448	0.47714	0.67071	0.52595	0.51275	0.58977
Q12	0.52532	0.46920	0.61858	0.68514	0.54915	0.46686	0.63214	0.54423	0.58596	0.57092
Q13	0.43066	0.33009	0.43888	0.45823	0.44721	0.39625	0.53195	0.43348	0.40472	0.45332
Q14	0.34730	0.63064	0.36647	0.37582	0.38370	0.39970	0.35316	0.34776	0.34554	0.34280
Q15	0.46293	0.44775	0.45961	0.49067	0.49804	0.37231	0.50399	0.40747	0.39937	0.46571
Q16	0.47803	0.48058	0.44658	0.48565	0.51086	0.39965	0.45180	0.42747	0.40565	0.46370
Q17	0.47749	0.45610	0.52931	0.57576	0.49598	0.45554	0.55362	0.57885	0.53078	0.53515
Q18	0.55303	0.45727	0.68697	0.74004	0.58942	0.47364	0.69965	0.55663	0.62534	0.61260
Q19	0.42527	0.46270	0.46873	0.45181	0.42081	0.48988	0.44545	0.41083	0.41 88	0.43278
Q20	0.40253	0.35843	0.44663	0.47117	0.44252	0.42764	0.44486	0.53288	0.45284	0.45173
Q21	0.43551	0.43435	0.49637	0.51308	0.48136	0.63333	0.47754	0.54041	0.47364	0.50432
Q22	0.50454	0.41328	0.56758	0.60976	0.51331	0.48906	0.60173	0.58204	0.58282	0.58801
Q23	0.53069	0.40263	0.46397	0.49513	0.57762	0.38787	0.54933	0.41448	0.39292	0.49015
Q24	0.42118	0.42804	0.43757	0.45799	0.46500	0.39515	0.44031	0.40160	0.40289	0.42917
Q25	0.46241	0.46986	0.48511	0.53440	0.49030	0.44607	0.46787	0.46364	0.46787	0.47281
Q26	0.44238	0.37305	0.49724	0.57128	0.47730	0.40005	0.55488	0.45104	0.53662	0.49068
Q27	0.46928	0.33521	0.46559	0.51505	0.47183	0.38332	0.58251	0.42161	0.43677	0.48338
Q28	0.46226	0.41670	0.50452	0.54764	0.46919	0.43106	0.54090	0.49017	0.45524	0.51115
Q29	0.39402	0.62073	0.45000	0.47904	0.45481	0.45430	0.44729	0.35576	0.43034	0.42008
Q30	0.43099	0.45951	0.57824	0.62186	0.50989	0.47989	0.58456	0.61637	0.56153	0.52948

	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Q1	0.57888	0.52532	0.43066	0.34730	0.46293	0.47803	0.47749	0.55303	0.42527	0.40253
Q2	0.57203	0.46926	0.33009	0.63064	0.44775	0.48058	0.45610	0.45727	0.46270	0.35643
Q3	0.60394	0.61858	0.43888	0.36647	0.45961	0.44658	0.52931	0.68697	0.46073	0.44663
Q4	0.63208	0.68514	0.45823	0.37582	0.49067	0.48965	0.57576	0.74004	0.45181	0.47117
Q5	0.59448	0.54915	0.44721	0.38370	0.49804	0.51086	0.49598	0.58842	0.42081	0.44252
Q6	0.47714	0.46686	0.39629	0.39970	0.37231	0.39965	0.45554	0.47364	0.48986	0.42764
Q7	0.67071	0.63214	0.53195	0.35316	0.50399	0.49180	0.55362	0.69965	0.44545	0.44488
Q8	0.52595	0.54423	0.43348	0.34776	0.40747	0.42747	0.57889	0.55663	0.41083	0.53288
Q9	0.51275	0.58596	0.40472	0.34554	0.39937	0.40565	0.53078	0.62534	0.41788	0.45284
Q10	0.56977	0.57092	0.45332	0.34280	0.46671	0.46370	0.53515	0.61260	0.43276	0.45173
Q11	1.00000	0.65155	0.48205	0.47607	0.58027	0.59218	0.55316	0.62811	0.51236	0.42996
Q12	0.65155	1.00000	0.47686	0.37755	0.49893	0.49987	0.45662	0.68450	0.47493	0.44298
Q13	0.48205	0.47686	1.00000	0.31877	0.40981	0.39754	0.42529	0.51651	0.43638	0.36513
Q14	0.47607	0.37755	0.31877	1.00000	0.39148	0.40970	0.36634	0.34774	0.43206	0.33562
Q15	0.58027	0.49893	0.40981	0.39488	1.00000	0.70304	0.45633	0.49260	0.38599	0.35765
Q16	0.59218	0.49987	0.39754	0.40970	0.70304	1.00000	0.44630	0.49099	0.42241	0.35505
Q17	0.55316	0.54882	0.42529	0.36634	0.45633	0.44630	1.00000	0.60219	0.43183	0.56073
Q18	0.62811	0.68450	0.51651	0.34774	0.49260	0.49099	0.60219	1.00000	0.48762	0.45915
Q19	0.51236	0.47493	0.43638	0.43206	0.38599	0.42241	0.43183	0.48762	1.00000	0.40039
Q20	0.42996	0.44258	0.36513	0.33562	0.35765	0.35505	0.56073	0.45915	0.40039	1.00000
Q21	0.52913	0.49571	0.40759	0.40965	0.40889	0.43961	0.50360	0.52409	0.56530	0.46585
Q22	0.53989	0.62882	0.48935	0.34026	0.44758	0.44238	0.55235	0.65260	0.45267	0.49110
Q23	0.58458	0.51126	0.49833	0.32360	0.60053	0.59963	0.45086	0.52434	0.39950	0.36477
Q24	0.52611	0.44869	0.38850	0.39770	0.45354	0.49725	0.39032	0.45911	0.50600	0.35731
Q25	0.52399	0.51335	0.40732	0.44165	0.43902	0.45872	0.50869	0.52117	0.46695	0.46630
Q26	0.49883	0.53278	0.47940	0.31247	0.41868	0.39638	0.49055	0.60360	0.43084	0.39256
Q27	0.52564	0.49344	0.53556	0.25709	0.45657	0.45015	0.44300	0.56533	0.37947	0.36296
Q28	0.55886	0.54062	0.42772	0.35216	0.43917	0.43054	0.51139	0.55601	0.44779	0.47821
Q29	0.52762	0.47272	0.34957	0.53572	0.44808	0.44716	0.48567	0.46955	0.44864	0.37028
Q30	0.58131	0.59935	0.46511	0.36276	0.44517	0.44779	0.65287	0.63000	0.48105	0.54180

	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Q1	0.43551	0.50454	0.53069	0.42118	0.46241	0.44238	0.46928	0.46226	0.39402	0.48099
Q2	0.45435	0.41328	0.40263	0.42804	0.46986	0.37305	0.33521	0.41670	0.62073	0.45991
Q3	0.49637	0.56758	0.43697	0.43757	0.48511	0.49724	0.46559	0.50492	0.45000	0.57824
Q4	0.51308	0.60978	0.49513	0.45799	0.53440	0.57128	0.51505	0.54764	0.47904	0.62186
Q5	0.48136	0.51331	0.57762	0.46500	0.49030	0.47730	0.47183	0.48919	0.45481	0.50989
Q6	0.63333	0.48906	0.38787	0.39514	0.44607	0.40009	0.38332	0.43106	0.45430	0.47989
Q7	0.47754	0.60173	0.54932	0.44031	0.46782	0.55488	0.58251	0.54090	0.44729	0.58456
Q8	0.44041	0.58204	0.41448	0.40160	0.46364	0.45104	0.42161	0.49017	0.39976	0.61637
Q9	0.47364	0.58282	0.39292	0.40289	0.46787	0.53662	0.43677	0.49524	0.43034	0.56153
Q10	0.50432	0.58812	0.49015	0.42912	0.47281	0.49066	0.48338	0.51115	0.42008	0.52946
Q11	0.52913	0.53989	0.58458	0.52611	0.52399	0.59883	0.52564	0.54886	0.52762	0.78131
Q12	0.49571	0.62882	0.51126	0.44869	0.51335	0.53276	0.49344	0.54062	0.47272	0.59935
Q13	0.40759	0.48935	0.48933	0.48850	0.45732	0.47940	0.53556	0.52772	0.34857	0.46511
Q14	0.40965	0.34026	0.32360	0.39770	0.44165	0.31247	0.25709	0.35216	0.53572	0.36276
Q15	0.40889	0.44758	0.60053	0.45354	0.43902	0.41868	0.45652	0.43917	0.44808	0.44517
Q16	0.43961	0.44238	0.59963	0.49725	0.45872	0.39638	0.45015	0.43054	0.44716	0.44779
Q17	0.50360	0.55235	0.45086	0.39032	0.50889	0.49055	0.44300	0.51139	0.48567	0.56287
Q18	0.52409	0.65260	0.52434	0.45911	0.52172	0.60360	0.56533	0.55601	0.46955	0.63000
Q19	0.56530	0.45276	0.39950	0.50800	0.46695	0.43084	0.37947	0.44779	0.44864	0.48015
Q20	0.46785	0.49110	0.36477	0.35731	0.46630	0.39256	0.36296	0.47821	0.37028	0.54180
Q21	1.00000	0.52287	0.44746	0.44946	0.48052	0.45434	0.44312	0.48094	0.46428	0.41162
Q22	0.52287	1.00000	0.48979	0.44599	0.52600	0.57136	0.54409	0.56484	0.42896	0.62063
Q23	0.44746	0.48979	1.00000	0.45662	0.48272	0.45630	0.50660	0.54751	0.43391	0.48195
Q24	0.44946	0.44599	0.45662	1.00000	0.54718	0.37046	0.39966	0.48388	0.42984	0.44721
Q25	0.43052	0.52600	0.48272	0.54718	1.00000	0.48859	0.39675	0.50775	0.46352	0.53944
Q26	0.45434	0.57136	0.45630	0.37046	0.48859	1.00000	0.53735	0.49265	0.41173	0.52725
Q27	0.44812	0.54409	0.50660	0.39966	0.39675	0.53735	1.00000	0.50486	0.37732	0.49250
Q28	0.48094	0.56484	0.45751	0.48388	0.50775	0.49265	0.50486	1.00000	0.45888	0.59332
Q29	0.46428	0.42896	0.43391	0.42984	0.46352	0.41173	0.37732	0.45868	1.00000	0.51146
Q30	0.51162	0.62063	0.48195	0.44721	0.53944	0.52725	0.49250	0.59332	0.51140	1.00000

TABLE 5

FACTOR LOADING MATRIX
FOR THE NINE FACTOR SOLUTION

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
Q1	0.35064	0.20806	0.22624	0.28393	0.25430	0.13630	0.14183	0.45304	-0.03805
Q2	0.24987	0.16186	0.75455	0.20362	0.08892	0.13873	0.07441	0.14324	-0.00902
Q3	0.64349	0.24959	0.23098	0.19170	0.17215	0.21610	0.13439	0.13443	-0.10109
Q4	0.70431	0.29639	0.22153	0.22317	0.20130	0.16969	0.14013	0.07493	-0.00437
Q5	0.38879	0.24339	0.23726	0.33850	0.24891	0.19449	0.15281	0.20231	-0.13398
Q6	0.24105	0.26578	0.27697	0.14601	0.15387	0.56313	0.08756	0.10510	0.01325
Q7	0.50353	0.28194	0.19884	0.27104	0.43256	0.12557	0.07838	0.13153	-0.06601
Q8	0.37248	0.53374	0.19117	0.17781	0.18580	0.15734	0.09366	0.09293	0.00246
Q9	0.48742	0.36501	0.20229	0.13357	0.22062	0.18619	0.11876	0.06352	0.23179
Q10	0.36685	0.31006	0.17118	0.24261	0.26634	0.24957	0.10174	0.38202	0.15639
Q11	0.40814	0.22847	0.26306	0.38516	0.29364	0.16570	0.18124	0.15364	-0.08192
Q12	0.53815	0.29012	0.22764	0.26085	0.27866	0.16678	0.15084	0.09603	0.07786
Q13	0.22103	0.21170	0.14568	0.21142	0.51382	0.18243	0.13765	0.10147	-0.04620
Q14	0.10292	0.15239	0.65634	0.17316	0.08828	0.17263	0.15388	0.05063	0.02391
Q15	0.21433	0.17921	0.23986	0.69984	0.20051	0.10577	0.10166	0.04791	0.05737
Q16	0.20104	0.16393	0.25992	0.70756	0.15151	0.15289	0.16219	0.06523	0.05024
Q17	0.31355	0.57853	0.24423	0.21844	0.21190	0.17025	0.05464	0.08214	0.00956
Q18	0.62708	0.28908	0.17381	0.22060	0.36198	0.18014	0.13063	0.09312	0.06522
Q19	0.20117	0.19913	0.32488	0.14979	0.23966	0.38604	0.31118	0.04956	-0.00454
Q20	0.18891	0.59105	0.16269	0.13622	0.13488	0.22663	0.13031	0.11047	-0.02725
Q21	0.22270	0.26064	0.25037	0.18281	0.21731	0.64062	0.15416	0.06120	0.02090
Q22	0.40534	0.40812	0.14469	0.17488	0.37298	0.21663	0.06350	0.02966	0.18006
Q23	0.21297	0.18413	0.16419	0.53269	0.37546	0.13672	0.16300	0.18396	-0.09589
Q24	0.19204	0.17096	0.25905	0.28938	0.17676	0.18243	0.58104	0.07733	-0.00080
Q25	0.24372	0.34807	0.30140	0.21690	0.19697	0.17236	0.38454	0.10174	0.06105
Q26	0.37654	0.26247	0.17220	0.15881	0.46260	0.15930	0.12733	0.03521	0.16031
Q27	0.28144	0.19435	0.09874	0.26780	0.58890	0.15396	0.09764	0.08808	0.01833
Q28	0.29383	0.38515	0.21433	0.19294	0.32584	0.15998	0.25879	0.07634	0.05896
Q29	0.20771	0.24157	0.57300	0.21923	0.19265	0.17644	0.14476	-0.00629	0.02954
Q30	0.36723	0.56937	0.23543	0.15592	0.28795	0.15926	0.15749	0.01041	0.00256

TABLE 6

FACTOR LOADINGS FOR NINE FACTOR MATRIX
BY ORIGINAL CATEGORIES

LEADERSHIP	FACT 1	FACT 2	FACT 3	FACT 4	FACT 5	FACT 6	FACT 7	FACT 8	FACT 9
Q3	.643	.250	.231	.192	.172	.216	.134	.134	-.101
Q4	.704	.296	.222	.223	.201	.170	.140	.075	-.004
Q9	.487	.365	.202	.134	.221	.186	.119	.064	.232
Q12	.538	.290	.228	.261	.151	.167	.151	.096	.078
Q18	.627	.289	.174	.221	.362	.180	.131	.093	.065
Q22	.405	.408	.145	.175	.373	.217	.164	.130	.180
ASSIGNMENT									
Q8	.372	.534	.191	.178	.186	.157	.094	.093	.002
Q20	.189	.591	.163	.36	.135	.227	.130	.144	-.027
Q23	.213	.184	.164	.533	.375	.137	.163	.184	-.096
Q25	.244	.348	.301	.217	.197	.172	.385	.102	.061
Q30	.367	.569	.235	.176	.288	.159	.157	.010	.003
REGULATIONS/ADMINISTRATION									
Q7	.504	.282	.199	.271	.433	.123	.078	.132	-.066
Q27	.281	.194	.099	.268	.589	.154	.098	.088	.018
Q28	.294	.385	.214	.193	.326	.160	.259	.076	.059
OFF DUTY LIFE									
Q1	.351	.208	.226	.284	.254	.136	.142	.453	-.038
Q10	.367	.310	.171	.243	.266	.250	.102	.382	.156
Q15	.214	.179	.240	.700	.201	.106	.102	.048	.057
Q16	.201	.164	.260	.708	.152	.153	.162	.065	.050
FRINGE BENEFITS									
Q2	.250	.162	.755	.204	.089	.139	.074	.143	-.009
Q6	.241	.266	.277	.146	.154	.563	.088	.105	.013

TABLE 6 (con't)

	FACT 1	FACT 2	FACT 3	FACT 4	FACT 5	FACT 6	FACT 7	FACT 8	FACT 9
Q14	.103	.152	.656	.173	.088	.173	.154	.051	.024
Q19	.201	.199	.325	.150	.240	.386	.311	.050	-.005
Q21	.223	.261	.250	.183	.217	.641	.154	.061	.021
EDUCATION									
Q17	.314	.579	.244	.218	.212	.170	.055	.082	.010
Q29	.208	.242	.573	.219	.193	.176	.115	-.006	.030
QUARTERS									
Q5	.389	.243	.237	.339	.249	.194	.153	.202	-.134
Q13	.221	.212	.146	.211	.514	.182	.138	.101	-.046
Q24	.192	.171	.259	.289	.177	.182	.581	.077	-.001
PAY									
Q11	.408	.228	.363	.385	.294	.166	.181	.154	-.082
ASSOCIATES									
Q26	.377	.262	.172	.159	.463	.159	.127	.035	.160

1. Not being treated with respect (Q4)[1]

2. Senior officers don't care about enlisted people (Q3)

3. Too much unfair treatment (Q18)

4. Lack of recognition for doing a good job (Q12)

5. Too many petty regulations (Q7)

This means that these five items are all closely related to a single underlying factor and could possibly be more efficiently represented by a single dimension -- i.e., a single item on the questionnaire -- or the responses to the five separate items could be summed to form a score for that factor. Assigning an acceptable name to the factor requires both insight and judgment. In this case, the title of Leadership is assigned to the factor since four of the five items are from that category. The fifth item is a component of the Regulations/Administration category.

In the second factor, the items with high factor loadings are:

1. Can't get into the rating I want (Q20)

2. Can't get the education or skills that I want (Q17)

3. Not enough chance to do more interesting/challenging work (Q30)

4. Work I'm assigned to doesn't use my educational skills (Q8)

---

[1]Each item of the questionnaire, when listed, will include its item number, i.e., (Q4), which is associated with the statement "Not being treated with respect." In further discussion within the text, only the item numbers will be used.

These variables come from the Assignment category (Q20, Q30, Q8) and the Education category (Q17) of the original nine questionnaire categories. These items all relate to an individual's attitude towards how he utilizes his formal and on-the-job training and its impact on his perception of where he feels he should be working. Rather than calling this category Assignment, it would appear more appropriate to refer to it as something like "Training Application."

The third factor shows high to very high factor loadings for the following three items:

1. Fear of losing more fringe benefits (Q2)
2. Fear of losing retirement benefits (Q14)
3. To keep from losing GI benefits (Q29)

The first two items are components of the original category called Fringe Benefits and the third is from the Education category. All three items show a strong relationship to post-service type benefits and would perhaps be better labeled as such. It is interesting to note that the highest factor loading of all the items occurred for item Q2 (Fear of losing more fringe benefits) on factor three. Response to this item most probably reflected a gut reaction towards loss of financial stability caused by inflation, congressional discussion on revamping the military retirement system, and reduction in GI benefits.

Factor four had three items with high or very high loadings on it.

1. Dislike family separation (Q16)
2. I want to live someplace permanently (Q15)
3. Dislike sea duty (Q23)

Of the four out of thirty items that had very high factor loadings, Q16 and Q15 ranked numbers two and four, respectively, in terms of factor loading coefficients. These two are components of the original Off Duty Life category, while Q23 is from the original Assignment category. All three items could be grouped together under the item of disliking family separation.

Factor five shows only two items with high loadings:

1. I want to be able to quit anytime I want (Q27)
2. BAQ inequity between married and single personnel (Q13)

Item Q13 comes from the original Quarters category, while Q27 is a component of the Regulations/Administration category. On initial observation these two items do not appear to have common content. In fact, Q27 would seem more appropriately grouped with Q1, "Working hours are too long." Perhaps the underlying relationship stems from a perception held by single personnel that their married peers have more freedom of movement away from the job, particularly after normal working hours when married personnel go home while single personnel usually live on board the ship. Most live on the ship because they cannot afford otherwise and often find themselves asked to work beyond normal working hours.

Factor six is formed by two items, both of which are components of the Fringe Benefits category.

1. Poor quality of medical care (Q21)

2. Poor quality of dental care (Q6)

The relationship between these two is obvious as is the relationship to the Fringe Benefits title. A modification of the category title "Medical Benefits" may more accurately convey the contents of the two items.

Factor seven has only one item with a high loading. This is:

1. Navy Housing not available or of poor quality (Q24)

This item is a component of the original Quarters category and is a key item in that category. The other two elements, Q5, "Poor berthing areas afloat," and Q13, "BAQ inequity between married and single personnel," show a low loading on this factor.

Although the SPSS program did generate nine factors as called for, no item showed high or very high loadings on factors eight and nine. Additionally, several items of the questionnaire showed no loadings $\geq .5$ on any of the nine factors. The following list shows those items with their highest factor loadings:

Q1.	Working hours are too long	FACTOR 8	.453
Q5.	Poor berthing areas afloat	FACTOR 1	.389
Q9.	Poor leadership of my work center supervisor	FACTOR 1	.487
Q10.	Little freedom to use non-work hours as I want	FACTOR 8	.382
Q11.	Pay is too low	FACTOR 1	.408
Q19.	Poor quality of Commissary/ Exchange	FACTOR 6	.386

Q22.	Not enough chance to do job my way	FACTOR 2	.408
Q25.	Can't get the detailing desired	FACTOR 7	.385
Q26.	Dislike the kind of people I must work with	FACTOR 5	.463
Q28.	Regulations keep me from advancing faster	FACTOR 2	.385

Ten of the thirty items reflected only moderate loadings (loadings from .3 to .5). The low factor loadings of the item relating directly to pay are worth noting. It is obvious, also, that using nine categories or factors is not necessary. As stated earlier, the first three factors accounted for 89.4 percent of the total common variance of the items. The equivalent information for any specific variable is contained in its communality, which is the proportion of its variance accounted for by the common factors. The communality of each of the variables is shown in Table 7. The next logical step was to conduct a factor analysis without specifying in advance the number of factors to be extracted.

B. FACTOR ANALYSIS (Uncontrolled for Number of Factors)

As in the case of the preceding analyses, principle-component analysis with variance orthogonal rotation was used. After a number of iterations during which the communalities converge, the program resulted in three factors. Factor one accounted for 89.3 percent of the variance, and had the only variable having a factor loading (> .7) of very high significance. The matrix of factor loadings is shown in Table 8. The three factor loadings for the items of the original nine categories are shown in Table 9.

TABLE 7

COMMUNALITIES AND VARIANCE
FOR NINE FACTORS

VARIABLE	COMMUNALITY
Q1	0.60810
Q2	0.75274
Q3	0.68917
Q4	0.77737
Q5	0.56329
Q6	0.58646
Q7	0.57672
Q8	0.56848
Q9	0.58478
Q10	0.63286
Q11	0.67579
Q12	0.63715
Q13	0.48827
Q14	0.55899
Q15	0.59268
Q16	0.71490
Q17	0.62409
Q18	0.74914
Q19	0.51388
Q20	0.53043
Q21	0.69920
Q22	0.64441
Q23	0.61925
Q24	0.62508
Q25	0.54890
Q26	0.54808
Q27	0.58659
Q28	0.52588
Q29	0.56022
Q30	0.67861

FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
1	14.77686	79.2	79.2
2	1.06666	5.7	84.9
3	0.83145	4.5	89.4
4	0.52378	2.8	92.2
5	0.40633	2.2	94.3
6	0.33283	1.8	96.1
7	0.29833	1.6	97.7
8	0.24747	1.3	99.0
9	0.17761	1.0	100.0

TABLE 8

FACTOR LOADING MATRIX FOR THE THREE FACTOR SOLUTION

ITEM	FACTOR 1	FACTOR 2	FACTOR 3
Q1	0.46405	0.27639	0.43815
Q2	0.25567	0.68524	0.27490
Q3	0.62804	0.30058	0.31262
Q4	0.69452	0.28180	0.33520
Q5	0.47574	0.31615	0.45541
Q6	0.45845	0.46839	0.17025
Q7	0.63696	0.20289	0.44748
Q8	0.62678	0.30336	0.19885
Q9	0.64931	0.27940	0.19468
Q10	0.57911	0.27410	0.35206
Q11	0.47383	0.41317	0.51681
Q12	0.62933	0.28377	0.37198
Q13	0.46864	0.18937	0.38833
Q14	0.15197	0.69323	0.20559
Q15	0.25238	0.31501	0.66649
Q16	0.22992	0.36756	0.66510
Q17	0.60944	0.35477	0.22576
Q18	0.72782	0.21467	0.37401
Q19	0.39273	0.48594	0.24020
Q20	0.53616	0.33793	0.12795
Q21	0.48067	0.47315	0.22186
Q22	0.69368	0.24336	0.28384
Q23	0.34360	0.22897	0.66283
Q24	0.32289	0.42173	0.38103
Q25	0.45120	0.44458	0.29455
Q26	0.59161	0.20015	0.31281
Q27	0.51942	0.11889	0.45687
Q28	0.55400	0.31971	0.29500
Q29	0.31011	0.60033	0.26433
Q30	0.67186	0.34778	0.22614

TABLE 9

FACTOR LOADINGS FOR THREE FACTOR MATRIX
BY ORIGINAL CATEGORIES

CATEGORY	FACT 1	FACT 2	FACT 3
LEADERSHIP			
Q3	.628	.301	.313
Q4	.695	.282	.335
Q9	.649	.279	.195
Q12	.630	.284	.372
Q18	.728	.215	.374
Q22	.694	.243	.284
ASSIGNMENT			
Q8	.627	.303	.199
Q20	.536	.338	.128
Q23	.344	.229	.663
Q25	.451	.445	.295
Q30	.672	.348	.226
REGULATIONS/ADMINISTRATION			
Q7	.640	.203	.447
Q27	.519	.119	.457
Q28	.554	.320	.295
OFF DUTY LIFE			
Q1	.464	.276	.438
Q10	.579	.274	.352
Q15	.252	.315	.666
Q16	.230	.368	.665
FRINGE BENEFITS			
Q2	.256	.685	.275
Q6	.458	.468	.170
Q14	.152	.693	.206
Q19	.393	.486	.240
Q21	.481	.473	.222
EDUCATION			
Q17	.609	.355	.226
Q29	.310	.600	.264

TABLE 9 (con't)

CATEGORY	FACT 1	FACT 2	FACT 3
QUARTERS			
Q5	.476	.316	.455
Q13	.470	.189	.388
Q24	.323	.422	.381
PAY			
Q11	.474	.413	.517
ASSOCIATES			
Q26	.592	.200	.313

Of the thirty items, fifteen of them form the components of the first factor. Of these fifteen, only Q18 has a factor loading of greater than 0.7. The remaining fourteen have loadings falling in the high significance category, ranging from 0.51 to 0.69. These items in order of factor loading on factor one area:

1. Too much unfair treatment (18)
2. Not being treated with respect (Q4)
3. Not enough chance to do job my own way (Q22)
4. Not enough chance to do more interesting/challenging work (Q30)
5. Poor leadership of my work center supervisor (Q9)
6. Too many petty regulations (Q7)
7. Lack of recognition for doing a good job (Q12)
8. Senior officers don't care about enlisted people (Q3)
9. Work I'm assigned doesn't use my educational skills (Q8)
10. Can't get the education or skills that I want (Q17)
11. Dislike the kind of people I must work with (Q26)
12. Little freedom to use non-work hours as I want (Q10)
13. Regulations keep me from advancing faster (Q28)
14. Can't get into the rating I want (Q20)
15. I want to be able to quit anytime I want (Q27)

These fifteen items comprising factor one include all six items of the original Leadership category, all three items of the

Regulations/Administration category, three of the five items forming Assignment, one each from Off Duty Life and Education and the single item that forms the criterion for the original Associates category. The first two items listed for factor one were also items three and one, respectively, in the nine factor analysis. Six of the first eight items in factor one are the six items used to formulate the original Leadership category. Factor one of the three factor analysis includes all the items from factor one and two, one-half of the items from factor five, and five of the ten unassigned items from the nine factor analysis. With the possible exception of Q10, which ranks twelfth on the above list of items forming the first factor, these items could perhaps be more suitably categorized as "Job Satisfaction" rather than spread among the five different categories to which they are assigned. This is strongly supported by the single item of the thirty which shows a factor loading of very high significance (.73). This item is Q18, "Too much unfair treatment."

The second of the three factors is composed of only the following three items:

1. Fear of losing retirement benefits (Q14)
2. Fear of losing more fringe benefits (Q2)
3. To keep from losing GI benefits (Q29)

The relationship of these three items is obvious and centers around the term benefits. What is interesting with this factor is its failure to include the items directly related to

benefits such as medical and dental care and commissary/exchange usage. Two of these items loaded on factor two, but their loadings were only moderate. Factor two compares well with factor three from the factor analysis which forced out nine factors. Again the concern expressed by the items on this factor appear to be on post-service type benefits, with medical benefits being of minimum concern.

Factor three had four items having high loadings:

1. I want to live someplace permanently (Q15)
2. Dislike family separation (Q16)
3. Dislike sea duty (Q23)
4. Pay is too low (Q11)

The first three items, particularly Q15 and Q16, are very strongly related to this factor, and give strength to referring to this factor as "homesteading" or "family stability." The item of "Pay being too low," does tie in with this factor. However, given the current economics of family life, it is looked at as a single category by the data users as a measure of attitude toward comparability of pay with private sector pay scales. An interesting observation from this study is that the issue of compensation is never specifically addressed as a factor in the motivation to separate, but is reflected by a significant loading by Q11, "Pay is too low," on each of the three factors (see Table 8).

As was the case in the nine-factor analysis, several of the items did not show high enough factor loadings ($> .5$) to have

a significant loading on any factor. The eight items are listed below with their highest factor loading:

Q19.	Poor quality of Commissary/Exchange	FACTOR 2	.49
Q21.	Poor quality of medical care	FACTOR 1	.48
Q5 .	Poor berthing areas afloat	FACTOR 1	.48
Q13.	BAQ inequity between married and single personnel	FACTOR 1	.47
Q6 .	Poor quality of dental care	FACTOR 2	.47
Q1 .	Working hours are too long	FACTOR 1	.46
Q25.	Can't get the detailing desired	FACTOR 1	.45
Q24.	Navy housing not available or of poor quality	FACTOR 2	.45

With the possible exception of Q21, "Poor quality of medical care," which relates in content with items in factor two, each of the above items, although not strong loaders, belong in the factor where it shows its highest loading. The same relationship does not exist for the ten items of low loading discussed in the initial factor analysis. Table 10 shows the communality of each of the variables in the unconstrained analysis. Comparing the communality and variance data in Table 10 for nine factors with the same data in Table 7 for three factors, it appeared that the unconstrained iteration of three factors more accurately loaded the thirty items into three factors rather than nine initial categories of data classification.

C. FACTOR ANALYSIS OF SUBSETS OF THE DATA

During this phase of the analysis, the original data were separated into a subset consisting of those personnel, who upon

TABLE 10

COMMUNALITIES AND VARIANCE FOR THE THREE FACTOR SOLUTION

VARIABLE	COMMUNALITY
Q1	0.48371
Q2	0.61049
Q3	0.58252
Q4	0.67412
Q5	0.53368
Q6	0.45855
Q7	0.64712
Q8	0.52443
Q9	0.53757
Q10	0.53444
Q11	0.66232
Q12	0.61495
Q13	0.40629
Q14	0.54592
Q15	0.60714
Q16	0.63032
Q17	0.54824
Q18	0.71569
Q19	0.44807
Q20	0.41803
Q21	0.50414
Q22	0.62099
Q23	0.60983
Q24	0.42729
Q25	0.48799
Q26	0.48791
Q27	0.49266
Q28	0.49615
Q29	0.52644
Q30	0.62348

FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
1	14.70608	89.3	89.3
2	0.99659	6.1	95.4
3	0.75775	4.6	100.0

separation, were classified as RE-R1 (Recommended for preferred reenlistment) or RE-1 (Eligible for reenlistment). These personnel represent a quality loss experienced by the Navy and are the personnel toward whom our retention efforts are aimed. The subset was analyzed by the same procedures that were used for the complete data set. The subset was first factored into nine factors. Next, an unconstrained (no constraint on number of factors) factor analysis was run. Again, three factors resulted. The factor loadings, communalities, and factor scores changed, but the composition of the factors remained constant throughout. In the first analysis, the proportion of variance for the first three factors decreased from 89.4 percent to 86.9 percent. In the unconstrained analysis the variance of factor one declined from 89.3 percent to 87.0 percent. There seemed to be no significant difference in factor structure between the total sample and the subset controlled by reenlistment classification. In view of this finding, it seemed neither necessary or worthwhile to reproduce the tables for each of the subsets of data.

D. DISCRIMINANT ANALYSIS OF ESQ RESPONSE DATA

Discriminant analysis is a useful form of multivariate analysis which allows a researcher to attempt to distinguish statistically between two or more groups [28, 32, 33]. After selecting the groups with which he intends to work, the researcher normally selects variables that measure characteristics on which the groups are expected to differ. The degree to which

one can predict into which group an individual belongs knowing the discriminating variables is then determined. A key point is that the individuals are assigned to groups to which they may not belong but to which they "should belong" on the basis of evidence on the individuals that is independent of group membership [32]. The prediction capability depends on the strength of the relationship between the dependent variable and the independent discriminating variables.

The mathematical objective of discriminant analysis is to weight and linearly combine, as in multiple regression and factor analysis, the discriminating variables so that the groups are as distinct as possible. The maximum number of functions which can be derived is either one less than the number of groups or equal to the number of discriminating variables [28]. As in factor analysis, eigenvalues and their associated canonical correlations denote the relative ability of each function to separate the groups. The standardized discriminant function coefficients are important and, when the sign is ignored, each coefficient represents the relative contribution of its associated variable to that function. The sign merely denotes whether the variable is making a negative or positive contribution [32]. As in factor analyses, these coefficients can be used to name the functions by identifying the dominant characteristics they measure [28].

Four iterations of discriminant analyses were performed using the responses of enlisted personnel who completed the

Enlisted Separation Questionnaire during the period January - March 1980. The first analysis was accomplished utilizing the entire sample population and attempted to discriminate between the group assigned desirable reenlistment codes and a group composed of those assigned an undesirable reenlistment code. The succeeding three analyses also attempted to discriminate between the same two groupings; however, each was constrained to analyze only those members of the sample population who were completing their first, second or third term of enlistment.

The variables used to distinguish the groups were the same in all four analyses: scores on the original categories of Leadership, Assignment, Regulations/Administration, Off Duty Life, Fringe Benefits, Education, Quarters, Pay and Associates. These scores were entered as continuous variables. Dummy variables were used to represent those separating personnel assigned desirable or undesirable reenlistment codes. The minimum tolerance for inclusion of a variable in the discriminant function was .001. This resulted in the inclusion of all variables at all levels of analyses. The results of the analyses are displayed in Table 11 and reveal that the independent variables used in the analyses have moderately good discriminating potential, particularly in the first and second analyses.

Table 12 lists the discriminant function coefficients for those variables meeting the .001 tolerance level. These

TABLE 11

DISCRIMINANT ANALYSIS OF ENTIRE GROUP AND SUBGROUPS OF SEPARATEES FOR PREDICTING REENLISTMENT CODING

Analysis[a]	Percent Correctly Classified	Chi-Squared	df	Significance
1	59.35%	88.301	9	0.00001
2	60.88%	76.574	9	0.00001
3	66.54%	19.552	9	0.0209
4	67.65%	3.719	9	0.9289

[a] Analysis 1 - for entire sample, predict desirable vs undesirable reenlistment code. N = 1931

Analysis 2 - for first term enlistees, predict desirable vs undesirable reenlistment code. N = 1424

Analysis 3 - for second term enlistees, predict desirable vs undesirable reenlistment code. N = 257

Analysis 4 - for third term enlistees, predict desirable vs undesirable reenlistment code. N = 34

TABLE 12

DISCRIMINANT FUNCTION FOR PREDICTING DESIRABLE OR UNDESIRABLE REENLISTMENT CODING

VARIABLE	COEFFICIENTS			
	Total Sample	First Term	Second Term	Third Term
Leadership	-0.6845	-0.6735	-0.4097	-0.6572
Assignment	-1.3839	-1.5037	-0.4298	-1.0534
Regulations/ Administrative	0.1126	0.0355	-0.0644	0.3027
Off Duty Life	0.8651	0.8462	0.3199	0.4283
Fringe Benefits	0.4951	0.6241	0.1462	0.2136
Education	0.4003	0.5661	-0.0319	-0.0146
Quarters	0.1735	0.1724	0.3296	0.6307
Pay	0.3553	0.1509	1.1255	0.5825
Associates	0.2069	0.2325	-0.1893	0.7393
n =	1931	1424	257	34

[a] Tolerance level = .001

coefficients represent the relative contribution of the discriminating variables to the discriminant function and the sign denotes whether the variable made a positive or negative contribution.

Table 13 displays two further measures of judging the strength of the discriminant functions. First are the eigenvalues which measure the relative importance of the function. These values are followed by the canonical correlation values which represent the measure of association between the discriminant function and the dummy variables defining group membership.

TABLE 13

CANONICAL CORRELATIONS OF THE DISCRIMINANT FUNCTION

ANALYSIS	EIGENVALUE	CORRELATION COEFFICIENT	CORRELATION COEFFICIENT SQD.
Full Sample	.045	.21	.04
First Term	.056	.23	.05
Second Term	.081	.27	.07
Third Term	.145	.36	.13

A brief discussion of each analysis and its discriminant function follows.

1. Total Sample Discriminant Function

As reported in Table 11, a chi-square value of 88.3 was found for this analysis. The probability of obtaining a value this large or larger with nine degrees of freedom is less than one chance in 10,000. By itself, this statistic allows the conclusion that a systematic relationship does exist

betwen the variables. From Table 12, the discriminant coefficients with significant contribution ($\geq .5$) to the total sample discriminant function are assigned to the variables Leadership, Assignment and Off Duty Life. The variable Fringe Benefits, when its coefficient is rounded to one decimal place, also contributes significantly. The individual questionnaire items associated with these categories are those same items with the strongest loading on Factor 1 in the previous analyses (see Tables 6 and 9). From the data reported in Table 13, the canonical correlation coefficient for this sample indicates only a moderate correlation between the criterion (the two groups) and the discriminant function. Although the percentage of variance explained may be too low for practical significance, it is reliable and indicates that there is a difference between the two groups in how they answer the ESQ.

2. First-Term Personnel Discriminant Function

In this analysis, a chi-square value of 76.6 supports the existence of a systematic relationship between the variables and group membership. As in the previous analysis, this statistical significance may in part be due to the large sample size. Similar to the discriminant function for the total sample, the discriminant coefficient with the highest loading represents the variable Assignment. Leadership, Off Duty Life, Fringe Benefits and Education variables are the most significant of the coefficients in this discriminant function. The individual questionnaire items associated with these categories were among the most significant items loading on their

corresponding factors in both the nine and three factor analyses. As in the analysis of the full sample, the canonical correlation coefficient (.23) represents only a moderate measure of association in existence between the two groups.

3. Second-Term Personnel Discriminant Function

Unlike the results presented with the first two discriminant analyses, the function developed for this sample has a significantly lower chi-square (19.6) with a significance of .02, with nine degrees of freedom. This small value of chi-square is interpreted as an indication of an absence of relationship between the variables. This lack of relationship is referred to as statistical independence. The reliability of this finding, however, is somewhat weakened by the sample size being only 257 personnel. Another significant difference in this analysis, when compared to the first two, is the absence of any of the variables that have shown significant loadings on the previous discriminant functions. The single most significant coefficient in this analysis is associated with the variable pay. In fact, this is the strongest coefficient value for this variable in any of the discriminant functions. This breakout of the variable pay differs considerably from the results of the factor analyses in which the variable pay does not load significantly on any factor but has moderate loading throughout all of the factors.

Similar to the previous two analyses, the canonical correlation value of .27 indicates that there is, at best, a moderate measure of association between scores on the function and group membership.

4. Third-Term Personnel Discriminant Function

In this fourth and final discriminant analysis, the chi-square value of 3.7 was not statistically significant. Therefore, the results of this analysis could be due strictly to chance. The small sample size of 34, however, is probably the best explanation for these results. This could also explain the large increase in canonical correlation coefficient relative to the previous three analyses.

5. Group Classification

From the four discriminant analyses we observe the projection of a linear combination of the variables or measures to produce the maximum possible separation of the two groups. In reality, the analysis of the data produces a set of weights or coefficients that are used in a discriminant function. As a check on the adequacy of the discriminant functions, the probability of membership in the respective groups is computed. Displayed in Table 14 are the percentages of group members accurately classified by each function. To see how much using the discriminant function improves the prediction of group membership over chance, a percentage using group membership base rates was computed for each of the analyses. By chance is defined as not using the discriminant function, and just predicting the next individual as a desirable or undesirable group member based on knowledge of historic group membership rates. Table 15 displays the difference between the percentage by function and by chance for each of the analyses.

The results of these four analyses reveal that the independent variables used in the discriminant functions have

TABLE 14

PERCENTAGE OF GROUP MEMBERSHIP ACCURATELY CLASSIFIED BY EACH FUNCTION

ANALYSIS	ACTUAL GROUP	NO. OF CASES	PREDICTED GROUP MEMBERSHIP DESIRABLE CODE	UNDESIRABLE CODE
1	Desirable	977	559 57.2%	418 42.8%
	Undesirable	954	367 38.5%	587 61.5%
	Total N:	1931		
	% Correctly Classified:		59.35	
2	Desirable	686	389 56.7%	297 43.3%
	Undesirable	738	260 35.2%	478 64.8%
	Total N:	1424		
	% Correctly Classified:		60.88	
3	Desirable	194	129 66.5%	65 33.5%
	Undesirable	63	21 33.3%	42 66.7%
	Total N:	257		
	% Correctly Classified:		66.54	
4	Desirable	20	15 75.0%	5 25.0%
	Undesirable	14	6 42.9%	8 57.1%
	Total N:	34		
	% Correctly Classified:		67.65	

TABLE 15

PERCENT CORRECTLY CLASSIFIED BY DISCRIMINANT FUNCTION AND PERCENT THAT COULD BE CORRECTLY CLASSIFIED BY CHANCE USING GROUP MEMBERSHIP BASE RATES[1]

ANALYSIS	CLASSIFIED BY FUNCTION	PERCENT THAT COULD BE CORRECTLY CLASSIFIED USING BASE RATE	DIFFERENCE IN PERCENT
1	59.35	52.05	7.3
2	60.88	54.42	6.5
3	66.50	58.37	8.1
4	67.65	61.76	5.9

[1] For example, base rate is determined by: if N_1 and N_2 both = 50, then $\frac{N_1}{N_1 + N_2} \times 100 = \frac{50}{50 + 50} \times 100 = 50\%$. Therefore, it is correct 50% of the time to predict the next member is desirable for reenlistment. N_1 or N_2 may be used as the numerator, depending on which group's base rate is being calculated.

moderate discriminating potential, particularly in the first and second analyses. More importantly, in the analyses with a large sample size, the discriminant coefficients strongly support the significant loadings reported in the factor analyses.

VI. CONCLUSIONS

Personnel losses, whether due to early attrition or later failure to reenlist, are probably the most serious problem facing the Navy of the 1980's. There is no easy and fast solution to the problem; however, there has been considerable research on personnel turnover, much of which suggests directions for policy changes that should be considered at the highest levels. Some action has been taken (i.e., pay improvements) and the impact, particularly of the pay changes, calls for continued study. Collection of data from questionnaires such as that used as the basis for this research is important if the Navy uses the data as a basis for necessary long-term corrective actions.

If personnel retention is important to an organization, especially the military in an all volunteer force environment, it follows that factors impacting on the decision to reenlist or separate from active duty are also important. It is not sufficient, however, simply to have a functioning monitoring system for measuring the factors having the greatest impact on the attitudes of officer or enlisted personnel. It is essential that the system be both effective and efficient. The monitoring system currently used by the Navy is apparently effective in the sense that it fulfills its objectives to the satisfaction of its users. The primary question raised

and examined in this study concerns not the effectiveness, but how the data from the questionnaire can be summarized. Based on the analytic results presented earlier, the questionnaire is effective but the data from it could be summarized more parsimoniously.

The thirty attitudinal dimensions examined in this study contain information which is undoubtedly vital to the needs of the Navy. The categorization of the items into nine broad groupings, however, is not supported by the analysis. As shown by the unconstrained factor loading, fifty percent of the questionnaire items have high loading on one factor. These fifteen items are strongly related to the concept of job satisfaction; albeit there is frequently a need to trade off between completeness and efficiency there is a redundancy in the items as they are currently written and/or understood by the individual respondent. Leadership, duty assignment and regulations are all elements of job satisfaction as shown in this study.

The four items loading strongest on the proposed second factor all relate to the subject of benefits. This category also includes the weaker loading items associated with medical, dental and commissary/exchange privileges. These latter three items are directly associated with military retirement benefits as well as being within a general definition of fringe benefits. This redundance is inefficient. Benefits is a strong factor and should be one of the summarization categories; however, it must be given more specific definition.

The third factor relates very strongly to the concept of establishing a permanent domicile. Gone apparently is the excitement of moving to new locations and meeting new people. The title of "Family Stability" better suits all of the significant loadings including "dislike of sea duty" and "pay is too low."

An appropriate question to be answered is: How much information is enough? If the three factors proposed by this study are not sufficient, then further factors should be used. These additional factors should be defined by those items with low factor loadings on the three common factors, since they are the items least represented by the common factors. The ultimate decision in this matter, however, depends on the needs and objectives of the system. The three factors developed in this study appear adequate to satisfy Navy objectives.

From the analyses of the responses to the questionnaire, it is clear that the attitudes of both those personnel considered desirable for reenlistment and those considered undesirable for reenlistment are similar. Discriminant analyses provided additional data to support the factor loadings of the three factor analyses.

The goal of the Enlisted Separation Questionnaire must be to obtain the data needed to deal with the organizational commitments necessary to enhance favorable attitudes and perceptions toward military service as a challenging career, not just another job.

A. RECOMMENDATIONS

1. Reorganize data results by summing together those items loaded on factor one under one category such as "Job Satisfaction" used in this study.

2. Reorganize the components of the Fringe Benefits category to include items 6, 14, 19, 21, 24 and 29. Delete all catch-all items such as "fear of losing more fringe benefits" (Q2), and replace with more specific items such as those previously listed.

3. Define the third factor to include all items associated with the concept of family stability. That is, for the third factor sum together the responses to questions 10, 13, 15, 16, 23 and 24.

4. The significance of the impact of pay cannot be ignored and must be reported as a separate category.

APPENDIX A

OPNAV INSTRUCTION 1040
OFFICER AND ENLISTED SEPARATION QUESTIONNAIRE

DEPARTMENT OF THE NAVY
Office Of The Chief Of Naval Operations
Washington, D.C. 20350

OPNAVINST 1040.
Op-136D

22 Dec 1980

OPNAV INSTRUCTION 1040.

To: All Ships and Stations (less Marine Corps field addresses not having Navy personnel attached)

Subj: Separation Questionnaire

Ref: (a) 5 USC 301

Encl: (1) Enlisted Separation Questionnaire
(2) Officer Separation Questionnaire

1. Purpose. To establish procedures and guidelines to be followed in the completion of the Enlisted Separation Questionnaire (ESQ) and the Officer Separation Questionnaire (OSQ).

2. Background. In order to determine the predominant factors influencing service members to leave active duty, the ESQ, enclosure (1), and the OSQ, enclosure (2), have been developed and tested by the Naval Personnel Research and Development Center (NPRDC), San Diego, CA.

3. Information. Information furnished will be used for statistical studies to help the Navy improve and develop personnel related policies and procedures. It will not be used for any administrative action with respect to a servicemember completing the form and will not be made a part of the servicemember's permanent record.

4. Action. Under the authority of reference (a), all service members leaving the United States Navy are requested to fill out the appropriate separation questionnaire; either the ESQ, enclosure (1) OPNAV 1910/1 (Rev 3-80) or the OSQ, enclosure (2) OPNAV 1910/2 (11-80).

a. An acknowledgement of the opportunity to complete an OSQ/ESQ is to be included in all activity separation check off lists. Prior to final departure, the questionnaire is to be completed by the servicemember if he/she so desires. Information on the front page of the OSQ/ESQ is of a demographic nature and is needed to help validate statistical studies to help the Navy improve policies and procedures. For this reason if the servicemember declines to complete the

questionnaire, the separating station will be required to complete the front page of the questionnaire and forward it to the Department of the Navy.

b. The ESQ is comprised of sixteen sections on the front page and thirty questions on the back page. Sections one through ten and section sixteen are to be completed by the departing servicemember. Sections eleven through fifteen are to be filled out by the separation activity. Section fourteen should always have the circle "verified" colored in. This means that the separating activity has verified the questionnaire for proper completion. If the servicemember declines to fill out the separation questionnaire, the "declined" circle of section fourteen should also be colored. Section sixteen is used when additional questions are asked and is filled out by the departing service member. The back page will only be filled out by the servicemember if he/she so desires. It should be reiterated to the service member that response to the questionnaire could lead to improvements for future service members.

c. The OSQ has thirteen sections on the front page with thirty questions and a comment section on the back page. Sections one through thirteen of the front page are to be filled in by the departing officer. If the officer declines to fill out the OSQ, the separating activity will complete the front page and forward it to the Department of the Navy. The back page will only be filled out by the departing officer if he/she so desires.

d. Separating activities are responsible for ensuring that correct procedures for completing ESQ and OSQ forms are followed. Do not fold the forms. Upon completion of questionnaire mail form to:

Department of the Navy
Navy Occupational Development Analyses Center Bldg 150
Washington Navy Yard (Anacostia) (Code 22)
Washington, DC 20374

5. Forms. The ESQ (OPNAV 1910/1, SN 0107-LF0019-1005, may be obtained through normal supply channels in accordance with NAVSUP 2002. The OSQ is not in the Navy Supply System yet, but is sent to all officers with their separation orders. This form will be available through NAVSUP approximately September 1981. Extra OSQ forms are also available from:

Department of the Navy
Officer of the Chief of Naval Operations
ATTN: Op 136D2A
Arlington Annex, Rm 2835
Washington, D.C. 20370

HUGH A. BENTON
Rear Admiral, U.S. Navy
Deputy Chief of Naval Operations
(Manpower, Personnel and
Training) (Acting)

Distribution:
SNDL Parts 1 and 2

Chief of Naval Operations
OP-09B15C
Washington, D.C. 20350 (200 copies)

Stocked:
CO, NAVPUBFORMCEN
5801 Tabor Ave.
Phila., PA 19120 (500 copies)

* U.S. GOVERNMENT PRINTING OFFICE 1980— 321 813 E 10 10129 12*

ENLISTED SEPARATION QUESTIONNAIRE

OPNAV 1910.1 (Rev. 3-80)
S/N 0107-LF-019-1005

SPECIAL INSTRUCTIONS

Your sincere responses to the following questions are needed to help improve decisions affecting Navy service members.

Please use a soft lead pencil to indicate your responses. Be sure to blacken in the spaces completely.

This form continued on the reverse.

PRIVACY ACT STATEMENT

Under the authority of 5 USC 301 regulations you are requested to complete this questionnaire. Information furnished will be used for statistical studies to help the Navy improve policies and procedures. It will not be used for any administrative action concerning you specifically, and will not be made a part of your permanent record. No adverse actions will be taken if you decline not to furnish the requested information.

THIS SECTION FOR OFFICIAL USE ONLY

1. DATE OF SEPARATION

Day	Month	Year
	Jan ○	
	Feb ○	
0 0	Mar ○	0
1 1	Apr ○	1
2 2	May ○	2
3 3	Jun ○	3
4	Jul ○	4
5	Aug ○	5
6	Sep ○	6
7	Oct ○	7 7
8	Nov ○	8 8
9	Dec ○	9 9

2. RATING

3. Pay Grade

E

E 1
E 2
E 3
E 4
E 5
E 6
E 7
E 8
E 9

4. Number of Times You Re-enlisted

(Count extensions of two years or more. Do not count first enlistment or short extensions.)

0 1 2 3 4 5 6

5. SEX

Male ○
Female ○

6. BRANCH OF SERVICE

USN ○
USNR ○

7. MARITAL STATUS

Single ○
Married ○
Divorced/Separ ○

8. FORMAL EDUCATION

Yrs. Comp	Degrees or Diplomas
0 0	None ○
1 1	
2	High School ○
3	
4	Associate ○
5	
6	Bachelor's ○
7	
8	Graduate ○
9	

9. LAST NAME (or first 9 letters) | F I | M I

10. SOCIAL SECURITY ACCOUNT NUMBER

11. Separation Code

12. NEC

Primary	Secondary

13. Re-enlistment Code

RE-R1 ○
RE-1 ○
RE-3P ○
RE-3R ○
RE-4 ○
OTHER ○

14. Completion Check

Declined ○
Verified ○

15. LAST PERMANENT DUTY STATION

MAJOR CLAIMANT

Atlantic Fleet ○
Pacific Fleet ○
Other ○

TYPE DUTY

Sea ○
Shore ○
Oversees (Sea) ○
Overseas (Shore) ○

ASSIGNMENT TYPE

Amphibious Ship ○
Carrier ○
Destroyer/Cruiser ○
Service Force Ship ○
Submarine ○
Headquarters/Major Staff ○
Fleet Air Squadron ○
Support Air Squadron ○
Fleet Training Squadron ○
Naval Air Station/N A F ○
Training Command ○
Naval Base ○
Other ○

UNIT IDENTIFICATION CODE

16 SPECIAL ANSWER SECTION (Use only if specifically instructed)

1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

ENCLOSURE (1)

IF YOU ARE VOLUNTARILY SEPARATING, how important has each of the following been in your decision to separate?

IF YOU ARE BEING INVOLUNTARILY SEPARATED, how important has each of the following been in its influence on you?

	EXTREMELY IMPORTANT	VERY IMPORTANT	IMPORTANT	OF SOME IMPORTANCE	NOT TRUE OR OF NO IMPORTANCE
1. Working hours are too long	○	○	○	○	○
2. Fear of losing more fringe benefits	○	○	○	○	○
3. Senior officers don't care about enlisted people	○	○	○	○	○
4. Not being treated with respect	○	○	○	○	○
5. Poor berthing areas afloat	○	○	○	○	○
6. Poor quality of dental care	○	○	○	○	○
7. Too many petty regulations	○	○	○	○	○
8. Work I'm assigned doesn't use my educational skills	○	○	○	○	○
9. Poor leadership of my work center supervisor	○	○	○	○	○
10. Little freedom to use non-work hours as I want	○	○	○	○	○
11. Pay is too low	○	○	○	○	○
12. Lack of recognition for doing a good job	○	○	○	○	○
13. BAQ inequity between married and single personnel	○	○	○	○	○
14. Fear of losing retirement benefits	○	○	○	○	○
15. I want to live someplace permanently	○	○	○	○	○
16. Dislike family separation	○	○	○	○	○
17. Can't get the education or skills that I want	○	○	○	○	○
18. Too much unfair treatment	○	○	○	○	○
19. Poor quality of Commissary/Exchange	○	○	○	○	○
20. Can't get into the rating I want	○	○	○	○	○
21. Poor quality of medical care	○	○	○	○	○
22. Not enough chance to do job my way	○	○	○	○	○
23. Dislike sea duty	○	○	○	○	○
24. Navy housing not available or of poor quality	○	○	○	○	○
25. Can't get the detailing desired	○	○	○	○	○
26. Dislike the kind of people I must work with	○	○	○	○	○
27. I want to be able to quit anytime I want	○	○	○	○	○
28. Regulations keep me from advancing faster	○	○	○	○	○
29. To keep from losing GI benefits	○	○	○	○	○
30. Not enough chance to do more interesting/challenging work	○	○	○	○	○

APPENDIX B

ENLISTED SEPARATION SURVEY RESULTS FOR FY80

ENLISTED SEPARATION CUMULATIVE RESULTS FOR FY80

a. All Navy cumulative Results

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80	1st QTR FY-80
1	Pay is too low	1	1	1	1
2	Dislike family separation	2	2	2	4
3	Too many petty regulations	3	3	3	2
4	Not being treated with respect	4	4	4	6
5	Lack of recognition for doing a good job	5	5	5	3
6	Too much unfair treatment	8	6	6	5
7	I want to live some place permanently	6	8	8	7
8	Senior officers don't care about enlisted people	10	7	7	10
9	Dislike sea duty	9	9	9	11
10	Poor berthing areas afloat	7	10	10	9
N = 8,715		N=2,346	N=4,133	N=1,931	N=305

b. RE-R1 (Recommended for Preferred Reenlistment)
RE-1 (Eligible for Reenlistment)

First Term cumulative

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80
1	Pay is too low	1	1	1
2	Too many petty regulations	2	2	2
3	Dislike family separation	3	3	3
4	Not being treated with respect	6	4	4
5	Lack of recognition for doing a good job	7	5	5
6	Poor berthing areas afloat	4	7	7
7	Too much unfair treatment	9	6	6
8	I want to live someplace permanently	8	8	8
9	Dislike sea duty	5	9	9
10	Senior officers don't care about enlisted people	10	10	10
N = 3,084		N=903	N=1,519	N=662

Second Term cumulative

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80
1	Pay is too low	1	1	1
2	Dislike family separation	2	2	2
3	I want to live someplace permanently	4	3	3
4	Dislike sea duty	3	4	4
5	Too many petty regulations	5	6	5
6	Fear of losing more fringe benefits	8	5	8
7	Not being treated with respect	7	7	9
8	To keep from losing GI benefits	6	8	12
9	Senior officers don't care about enlisted people	11	9	7
10	Lack of recognition for doing a good job	9	10	11
N = 800		N=226	N=387	N=187

Third Term cumulative

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80
1	Pay is too low	1	1	1
2	Dislike family separation	2	2	2
3	I want to live someplace permanently	3	4	3
4	Fear of losing more fringe benefits	10	3	6
5	Senior officers don't care about enlisted people	7	7	5
6	Not being treated with respect	5	11	4
7	Lack of recognition for doing a good job	4	8	8
8	Dislike sea duty	11	5	9
9	To keep from losing GI benefits	8	6	16
10	Not enough chance to do more interesting/challenging work	9	9	10
N = 111		N=28	N=63	N=20

ل

Male cumulative

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80
1	Pay is too low	1	1	1
2	Dislike family separation	2	2	2
3	Too many petty regulations	3	3	3
4	Dislike sea duty	5	4	4
5	I want to live somplace permanently	4	5	5
6	Not being treated with respect	7	6	6
7	Lack of recognition for doing a good job	8	7	7
8	Poor berthing areas afloat	6	10	8
9	Senior officers don't care about enlisted people	9	8	9
10	Too much unfair treatment	10	9	10
N = 4,017		N=1,160	N=1,982	N=875

Female cumulative

Ranking	Description	4th QTR FY-80	3rd QTR FY-80	2nd QTR FY-80
1	Pay is too low	1	1	1
2	Dislike family separation	3	2	3
3	Too much unfair treatment	2	6	2
4	Lack of recognition for doing a good job	4	4	6
5	Too many petty regulations	6	8	4
6	Can't get the education or skills I want	5	9	7
7	I want to live somplace permanently	9	3	12
8	Not being treated with respect	7	11	5
9	To keep from losing GI benefits	12	5	8
10	Fear from losing more fringe benefits	16	7	10
N = 169		N=52	N=69	N=48

APPENDIX C

GENERAL DISTRIBUTION TABLES OF CONSTRUCTED CATEGORIES BY DEMOGRAPHIC VARIABLES

SECOND QUARTER FY80

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE LEADERSHIP
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	2.639	2.867	1.421	2.020	1073
Married	2.578	2.682	1.301	1.693	614
Divorced	3.033	3.042	1.100	1.211	56
Major Claimant					
Atlantic Fleet	2.868	2.970	1.234	1.524	750
Pacific Fleet	2.476	2.814	1.570	2.466	909
Other	2.610	2.765	1.271	1.616	210
Type Duty					
Sea	2.639	2.867	1.421	2.020	1433
Shore	2.391	2.545	1.261	1.590	258
Overseas Sea	2.177	2.350	1.592	2.536	64
Overseas Shore	2.391	2.597	1.322	1.747	113
Duty Assignment					
Amphibious	2.789	3.153	1.547	2.393	159
Carrier	2.303	2.602	1.629	2.653	212
Destroyer-Cruiser	2.741	3.042	1.438	2.068	370
Service	2.161	2.347	1.691	2.859	139
Submarine	2.488	2.400	1.264	1.598	81
HDQTRS-Staff	2.204	2.333	1.668	2.783	6
FLT TRANG SQD	3.064	3.333	0.985	0.970	13
FLT Air SQD	2.798	3.119	1.398	1.955	81
Support Air SQD	2.639	2.750	1.367	1.869	24
NAS-NAF	2.521	2.677	1.080	1.166	97
Training COMD	1.993	2.333	1.342	1.802	25
Enlistment Terms					
1.	2.639	2.867	1.421	2.020	1424
2.	2.541	2.652	1.294	1.674	257
3.	2.716	3.083	1.440	2.073	34
4.	2.482	2.528	1.176	1.383	28

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE ASSIGNMENT
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	2.371	2.522	1.324	1.752	1073
Married	2.389	2.427	1.220	1.489	614
Divorced	2.657	2.620	1.010	1.019	56
Major Claimant					
Atlantic	2.543	2.590	1.131	1.280	750
Pacific	2.245	2.505	1.471	2.163	909
Other	2.354	2.420	1.214	1.473	210
Type Duty					
Sea	2.371	2.522	1.324	1.752	1433
Shore	2.337	2.486	1.222	1.493	258
Overseas Sea	1.947	1.786	1.525	2.324	64
Overseas Shore	2.085	2.185	1.115	1.334	113
Duty Assignment					
Amphibious	2.458	2.756	1.447	2.093	159
Carrier	2.172	2.515	1.605	2.577	212
Destroyer-Cruiser	2.480	2.639	1.370	1.876	370
Service	1.912	2.413	1.505	2.265	139
Submarine	2.183	2.262	1.077	1.160	81
HDQTRS/STAFF	1.867	1.950	1.261	1.590	6
FLT AIR SQD	2.257	2.175	1.125	1.265	81
Support AIR SQD	2.458	2.700	1.214	1.473	24
FLT TRNG SQD	2.892	3.150	1.303	1.697	13
NAS/NAF	2.408	2.462	0.995	0.989	97
Enlistment Terms					
1.	2.371	2.522	1.324	1.752	1424
2.	2.322	2.337	1.251	1.566	257
3.	2.335	2.100	1.357	1.842	34
4.	2.264	1.900	1.155	1.333	28

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE REGULATIONS
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	2.494	2.567	1.435	2.058	1073
Married	2.434	2.368	1.325	1.755	614
Divorced	2.714	2.708	1.132	1.283	56
Major Claimant					
Atlantic	2.664	2.667	1.263	1.596	750
Pacific	2.380	2.569	1.570	2.466	909
Other	2.390	2.329	1.316	1.733	210
Type Duty					
Sea	2.494	2.567	1.435	2.058	1433
Shore	2.336	2.357	1.317	1.735	258
Overseas Sea	1.865	1.867	1.514	2.292	64
Overseas Shore	2.159	2.083	1.318	1.738	113
Duty Assignment					
Amphibious	2.591	2.781	1.495	2.235	159
Carrier	2.085	2.233	1.596	2.548	212
Destroyer-Cruiser	2.656	2.776	1.489	2.217	370
Service	2.144	2.481	1.660	2.757	139
Submarine	2.527	2.619	1.283	1.647	81
HDQTRS/STAFF	2.148	2.000	1.608	2.586	6
FLT AIR SQD	2.556	2.778	1.391	1.936	81
Support AIR SQD	2.264	2.278	1.319	1.739	24
FLT TRNG SQD	2.564	2.778	1.117	1.248	13
NAS/NAF	2.347	2.312	1.163	1.352	97
Enlistment Terms					
1.	2.494	2.567	1.435	2.058	1424
2.	2.455	2.419	1.345	1.808	257
3.	2.343	2.367	1.377	1.896	34
4.	1.893	1.500	1.158	1.342	28

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE OFF DUTY LIFE
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	2.613	2.846	1.388	1.927	1073
Married	2.886	3.096	1.305	1.704	614
Divorced	3.138	2.982	1.004	1.009	56
Major Claimant					
Atlantic	2.897	2.986	1.187	1.410	750
Pacific	2.412	2.733	1.538	2.365	909
Other	2.465	2.587	1.189	1.413	210
Type Duty					
Sea	2.613	2.846	1.388	1.927	1433
Shore	2.413	2.599	1.230	1.513	258
Overseas Sea	2.070	2.000	1.528	2.334	64
Overseas Shore	2.290	2.491	1.267	1.606	113
Duty Assignment					
Amphibious	2.602	2.942	1.442	2.080	159
Carrier	2.289	2.607	1.653	2.732	212
Destroyer-Cruiser	2.703	2.985	1.436	2.062	370
Service	2.085	2.357	1.620	2.625	139
Submarine	2.787	2.938	1.314	1.727	81
HDQTRS/STAFF	2.333	2.563	1.691	2.859	6
FLT AIR SQD	2.750	2.938	1.269	1.609	81
Support AIR SQD	2.552	2.750	1.205	1.451	24
FLT TRNG SQD	2.577	2.688	1.077	1.160	13
NAS/NAF	2.539	2.587	1.024	1.049	97
Enlistment Terms					
1.	2.613	2.846	1.388	1.927	1424
2.	2.780	3.016	1.351	1.825	257
3.	2.735	2.625	1.382	1.909	34
4.	3.009	3.000	1.013	1.025	28

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE FRINGE BENEFITS
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	1.979	1.975	1.168	1.364	1073
Married	2.177	2.187	1.133	1.283	614
Divorced	2.242	2.750	0.866	0.750	56
Major Claimant					
Atlantic	2.120	2.083	1.017	1.035	750
Pacific	1.830	1.846	1.270	1.612	909
Other	2.107	2.183	1.112	1.236	210
Type Duty					
Sea	1.979	1.975	1.168	1.364	1433
Shore	2.095	2.118	1.147	1.316	258
Overseas Sea	1.581	1.300	1.325	1.755	64
Overseas Shore	1.988	2.087	1.141	1.302	113
Duty Assignment					
Amphibious	1.982	1.983	1.261	1.590	159
Carrier	1.695	1.757	1.311	1.720	212
Destroyer-Cruiser	1.981	1.938	1.186	1.407	370
Service	1.529	1.550	1.241	1.540	139
Submarine	1.936	1.870	1.000	1.001	81
HDQTRS/STAFF	1.356	1.600	.899	.808	6
FLT AIR SQD	2.074	2.175	1.062	1.128	81
Support AIR SQD	2.050	1.900	1.327	1.761	24
FLT TRNG SQD	2.662	2.450	1.253	1.569	13
NAS/NAF	2.243	2.244	0.980	0.960	97
Enlistment Terms					
1.	1.979	1.975	1.168	1.364	1424
2.	2.180	2.231	1.211	1.466	257
3.	1.976	1.850	1.055	1.112	34
4.	2.764	2.800	1.195	1.428	28

GENERAL DISTRIBUTION TABULATION
OF CONSTRUCTED VARIABLE EDUCATION
BY DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variables	N of Cases
Marital Status					
Single	2.517	2.687	1.542	2.377	1073
Married	2.527	2.649	1.441	2.077	614
Divorced	2.955	2.958	1.173	1.375	56
Major Claimant					
Atlantic	2.695	2.788	1.369	1.875	750
Pacific	2.333	2.525	1.655	2.741	909
Other	2.698	2.814	1.497	2.242	210
Type Duty					
Sea	2.517	2.687	1.542	2.377	1433
Shore	2.506	2.614	1.471	2.162	258
Overseas Sea	2.164	2.417	1.711	2.929	64
Overseas Shore	2.527	2.597	1.542	2.379	113
Duty Assignment					
Amphibious	2.522	2.818	1.605	2.577	159
Carrier	2.193	2.434	1.712	2.929	212
Destroyer-Cruiser	2.568	2.734	1.573	2.475	370
Service	1.924	1.969	1.633	2.666	139
Submarine	2.566	2.688	1.408	1.981	81
HDQTRS/STAFF	2.111	2.833	1.516	2.299	6
FLT AIR SQD	2.438	2.500	1.465	2.146	81
Support AIR SQD	2.417	2.750	1.523	2.319	24
FLT TRNG SQD	2.769	3.125	1.452	2.109	13
NAS/NAF	2.562	2.521	1.306	1.704	97
Enlistment Terms					
1.	2.517	2.687	1.542	2.377	1424
2.	2.572	2.682	1.467	2.152	257
3.	2.162	1.750	1.445	2.087	34
4.	2.357	2.125	1.933	2.053	28

GENERAL DISTRIBUTION TABULAT ON
OF CONSTRUCTED VARIABLE QUARTERS BY
DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	No of Cases
Marital Status					
Single	2.169	2.253	1.276	1.629	1073
Married	2.338	2.360	1.217	1.481	614
Divorced	2.333	2.333	1.048	1.099	56
Major Claimant					
Atlantic	2.315	2.317	1.101	1.213	750
Pacific	2.091	2.266	1.420	2.016	909
Other	2.033	1.976	1.148	1.317	210
Type Duty					
Sea	2.169	2.253	1.276	1.629	1433
Shore	2.053	2.056	1.197	1.433	258
Overseas Sea	1.677	1.667	1.367	1.869	64
Overseas Shore	1.808	1.717	1.182	1.396	113
Duty Assignment					
Amphibious	2.241	2.386	1.337	1.789	159
Carrier	1.923	2.100	1.466	2.149	212
Destroyer-Cruiser	2.300	2.337	1.354	1.834	370
Service	1.770	2.000	1.389	1.929	139
Submarine	2.210	2.250	1.206	1.454	81
HDQTRS/STAFF	1.630	1.667	1.160	1.346	6
FLT AIR SQD	2.337	2.431	1.242	1.543	81
Support AIR SQD	2.333	2.500	1.285	1.652	24
FLT TRNG SQD	2.410	2.458	1.020	1.040	13
NAS/NAF	2.192	2.240	1.078	1.162	97
Enlistment Terms					
1.	2.169	2.252	1.276	1.629	1424
2.	2.233	2.284	1.232	1.517	257
3.	2.333	2.333	1.343	1.805	34
4.	2.286	2.111	1.157	1.339	28

GENERAL DISTRIBUTION TABULATION
OF THE VARIABLE PAY BY DEMOGRAPHIC
VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	3.434	r.103	1.806	3.263	1073
Married	3.640	4.387	1.687	2.847	614
Divorced	4.161	4.567	1.125	1.265	56
Major Claimant					
Atlantic	3.708	4.276	1.545	2.386	750
Pacific	3.250	4.072	1.996	3.983	909
Other	3.329	3.607	1.678	2.815	210
Type Duty					
Sea	3.434	4.103	1.806	3.263	1433
Shore	3.519	4.090	1.700	2.889	258
Overseas Sea	2.641	2.900	2.027	4.107	64
Overseas Shore	2.973	3.087	1.734	3.008	113
Duty Assignment					
Amphibious	3.434	4.333	1.894	3.589	159
Carrier	2.849	3.393	2.064	4.261	212
Destroyer-Cruiser	3.611	4.526	1.827	3.339	370
Service	2.705	3.263	2.097	4.398	139
Submarine	3.753	4.353	1.609	2.588	81
HDQTRS/STAFF	2.556	2.250	2.007	4.028	6
FLT AIR SQD	3.679	4.438	1.642	2.696	81
Support AIR SQD	3.500	4.500	1.911	3.652	24
FLT TRNG SQD	3.846	4.571	1.519	2.308	13
NAS/FAF	3.608	3.867	1.469	2.157	97
Enlistment Terms					
1.	3.434	4.103	1.806	3.263	1424
2.	3.591	4.321	1.734	3.008	257
3.	3.559	4.056	1.599	2.557	34
4.	3.964	4.763	1.688	2.851	28

GENERAL DISTRIBUTION TABULATION
OF THE VARIABLE ASSOCIATES BY
DEMOGRAPHIC VARIABLES

Dependent Variable	Mean	Median	Std Dev	Variance	N of Cases
Marital Status					
Single	2.111	1.687	1.609	2.588	1073
Married	1.953	1.433	1.475	2.176	614
Divorced	2.250	1.880	1.455	2.118	56
Major Claimant					
Atlantic	2.231	1.811	1.518	2.303	750
Pacific	2.052	1.639	1.707	2.913	909
Other	1.995	1.488	1.482	2.196	210
Type Duty					
Sea	2.111	1.687	1.609	2.588	1433
Shore	1.876	1.350	1.450	2.101	258
Overseas Sea	1.719	1.300	1.676	2.809	64
Overseas Shore	1.867	1.367	1.485	2.205	113
Duty Assignment					
Amphibious	2.327	2.280	1.659	2.753	159
Carrier	1.816	1.357	1.669	2.786	212
Destroyer-Cruiser	2.249	1.900	1.696	2.876	370
Service	1.791	1.328	1.700	2.891	139
Submarine	1.827	1.485	1.321	1.741	81
HDQTRS/STAFF	1.778	1.750	1.394	1.944	6
FLT AIR SQD	2.222	1.789	1.620	2.625	81
Support AIR SQD	2.208	1.318	1.812	3.303	24
FLT TRNG SQD	1.692	1.286	1.251	1.564	13
NAS/NAF	2.062	1.447	1.471	2.163	97
Enlistment Terms					
1.	2.111	1.687	1.609	2.588	1424
2.	2.058	1.513	1.523	2.321	257
3.	2.176	1.500	1.678	2.816	34
4.	1.750	1.265	1.323	1.750	28

LIST OF REFERENCES

1. A Conversation with Admiral Thomas B. Hayward, CNO, All Hands, July 1980, 762.

2. President's Commission on Military Compensation, Report of, Washington, D.C.: Office of the President of the United States, April 1978.

3. Sinaiko, W. H. and Marshall, K. T., How Are We Going To Keep Them From Going Back to the Farm? Research on Personnel Loss in the Navy. Paper presented at the ORSA/TIMS National Meeting, Milwaukee, Wisconsin, October 17, 1979.

4. PERS-0a memo PERS-0a: CAM of 8 July 1977 discussing development of a separation interview form.

5. PERS-5a memo PERS-5212-RMR: lrp of 30 August 1977 discussing development of a separation interview form and enclosing a plan of action and milestones to complete tasking of a study to be conducted by HUMRRO.

6. Statement of Vice Admiral Robert B. Baldwin, Deputy Chief of Naval Operations for Manpower, Personnel and Training, in Department of Defense Appropriations for 1981; Hearings before a sub-committee of the House Committee on Appropriations, 96th Congress, 2nd session (GPO, 1980), p. 60.

7. OPNAVINSTRUCTION 1000.16D, 30 July 1977, Manual of Navy and Enlisted Manpower Policy, p. 6-21 to 6-29.

8. Bradley, D. G., A Predictive Statistical Model of Navy Career Enlisted Retention Behavior Utilizing Economic Variables, Masters Thesis, Naval Postgraduate School, Monterey, California, December 1980.

9. Who'll Fight for America? Time Magazine, June 9, 1980. P. 24-36.

10. Hunter, R. W., Nelson, G. R., The All-Volunteer Force, Has It Worked? Will It Work? Paper presented at Stanford University by the authors, December 1979.

11. Smith, J. V., Kendall, W. A., Personnel Situational and Organizational Determinant of Navy Enlisted Attrition, Master's Thesis, Naval Postgraduate School, Monterey, California, June, 1980.

12. Testimony of Admiral Thomas B. Hayward, Chief of Naval Operations, in Department of Defense Appropriations for 1981,

Hearing before a subcommittee of the House Committee on Appropriations, 96th Congress, 2nd session (GPO, 1980), p. 457.

13. Greenberg, M. G & McConeghy, G., Exploratory Development Research of U.S. Navy-Marine Corps Personnel - Phase I., In Wallace H. Sinaiko, Ed., First Term Enlisted Attrition, Washington, D. C.:Smithsonian Institution, 1977, pp. 360-381.

14. Guthrie, R. V., Navy Voluntary Release Pilot Program. In Wallace H. Sinaiko, Ed., First Term Enlisted Attrition, Washington, D.C.:Smithsonian Institution, 1977, pp. 309.

15. Enns, John N., Effect of the Variable Reenlistment Bonus on Reenlistment Rates: Empirical Results for FY 1971, (ARPATR 1502), Santa Monica, California: The Rand Corporation, June 1975.

16. Haber, S. E. & Stewart, C. T., Jr., The Responsiveness of Reenlistment to Changes in Navy Compensation, (TR-1254), Washington, D.C.: The George Washington University School of Arts and Sciences, May 1975.

17. Kleinman, Samuel D. and Shughart, William F., II. The Effects of Reenlistment Bonuses, ADA 009 794, Arlington, Virginia:Center for Naval Analyses, Institute of Naval Studies, September 1974.

18. Conversations with Commander P. Snyder, USN, OP-136D.

19. Conversations with Dr. W. H. Githen, Navy Personnel Research and Development Center, San Diego, California.

20. LaRocco, J. M., Pugh, W. M., Gunderson, E. K. Eric, Identifying Determinants of Retention Decisions, Personnel Psychology, 1977, 30, 199-215.

21. Hand, H. H., Griffeth, R. W., & Mobley, W. H., Military Enlistment, Reenlistment, and Withdrawal Research: A Critical Review of the Literature, Research Report TR-3. Columbia, South Carolina; Center for Management and Organizational Research, College of Business Administration, University of South Carolina, 1977.

22. Cooper, R. V. L., Military Manpower and the All-Volunteer Force, (ARPA Report No. R-1450), Santa Monica, California, Rand, September, 1977.

23. Altergott, D. A., A Study of Navy First-Term Reenlistment, Master's Thesis, Naval Postgraduate School, Monterey, California, 1972.

24. Thurstone, L. L., Multiple Factor Analysis, A Development and Expansion of the Vectors of the Mind, University of Chicago Press, 1947.

25. Harman, H. H., Modern Factor Analysis, University of Chicago Press, 1960, 1967.

26. Harman, H. H. & Holzinger, K. J., Factor Analysis, A Synthesis of Factorial Methods, University of Chicago Press, 1941.

27. Fruchter, B., Introduction to Factor Analysis, D. van Nostrand, 1954.

28. Nie, N. H., Hull, C. H., Jenkins, J. G., Stieinbrienner, K., Bent, D. H., Statistical Package for the Social Sciences, New York:McGraw-Hill, 1975.

29. Kaiser, H. F., "The Varimax Criterion for Analytical Rotation in Factor Analysis," Psychometrika, V.23, p. 187-200, 1958.

30. Morrison, D. F., Multivariate Statistical Methods, McGraw-Hill, 1967.

31. NAVMILPERSCOM/NST 1900.1 dtd 13 September 1979.

32. Eisenbeis, R. A. & Avery, R. B., Discriminant Analysis and Classification Procedures, Lexington Books, 1972.

33. Cacoullos, T., ed. Discriminant Analysis and Applications, Academic Press, 1973.

34. Robertson, D. W. & Royle, M. H. Job Satisfaction Measures as Predictors of Retention for Navy Enlisted Personnel, Technical Report 81-2, San Diego, California; Navy Personnel Research and Development Center, December, 1980.

35. Lau, A. W., Personal and Organizational Determinants of Enlisted Attrition. Technical Report 79-11, Navy Personnel Research and Development Center, San Diego, California, March 1979.

36. Griffen, P. A First-Term Attrition Severity Index For U.S. Navy Ratings, Master's Thesis, Naval Postgraduate School, Monterey, California, June 1981.

INITIAL DISTRIBUTION LIST

		No. of Copies
1.	Defense Technical Information Center Cameron Station Alexandria, Virginia 22314	2
2.	Library, Code 0142 Naval Postgraduate School Monterey, California 93940	2
3.	Department Chairman, Code 54 Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
4.	Professor R. S. Elster, Code 54Ea Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1
5.	Chief of Naval Operations (OP-11, 13, 136D) Department of the Navy Washington, D. C. 20350	3
6.	Defense Logistics Studies Information Exchange U. S. Army Logistics Management Center Fort Lee, Virginia 23801	1
7.	LCDR Roger C. Adams, USN 476 Old Orchard Circle Millersville, Maryland 21108	2
8.	Professor F. D. Harding, Code 54Hj Department of Administrative Sciences Naval Postgraduate School Monterey, California 93940	1

Thesis 193627
A2337 Adams
c.1 An analysis of the
U. S. Navy enlisted
separation question-
naire.