

# Development of a Navy Job-Specific Vocational Interest Model

William L. Farmer, Ph.D.  
Ronald M. Bearden, M.S.  
Geoffrey E. Fedak, M.S.  
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NPRST-TN-07-2  
December 2006

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Reviewed and Approved by  
Jacqueline A. Mottern, Ph.D.  
Institute for Selection and Classification

Released by  
David L. Alderton, Ph.D.

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Navy Personnel Research, Studies, and Technology Division  
Bureau of Naval Personnel  
5720 Integrity Drive  
Millington, Tennessee 38055-1000  
[www.nprst.navy.mil](http://www.nprst.navy.mil)



**REPORT DOCUMENTATION PAGE**

*Form Approved  
OMB No. 0704-0188*

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1. REPORT DATE (DD-MM-YYYY)			2. REPORT TYPE		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER		
				5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)				5d. PROJECT NUMBER		
				5e. TASK NUMBER		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)				8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT						
13. SUPPLEMENTARY NOTES						
14. ABSTRACT						
15. SUBJECT TERMS						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (Include area code)	



# Executive Summary

## Requirement

The purpose of this project was to develop a Navy-job specific vocational interest model designed to guide the development of a Navy-specific interest inventory.

## Procedure

We combined a review of the theoretical literature with a qualitative analysis of entry-level enlisted ratings to create a model that is grounded in current research and reflects the critical work activities and environments of Navy ratings.

## Findings

A content model of Navy-specific vocational interests was developed.

## Utilization of Findings

The model will be used to guide the development of Jobs and Occupational Interests in the Navy (JOIN)<sup>1</sup>, a Navy-specific interest inventory and to develop a method and instrument to measure job characteristics that are congruent with the constructs assessed by the interest inventory.

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<sup>1</sup> In 2006, this name was changed to Job Opportunities in the Navy (JOIN).





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## Introduction

The U.S. Navy has recognized a need for broader consideration of recruit interests during initial job assignment processing. Each year, approximately 50,000 young men and women volunteer for service in the Navy. For many it is their first exposure to the world of work. There is typically some degree of uncertainty on the recruit's part when faced with the wide array of opportunities available from among more than 70 entry level occupations (see Appendix B for a listing of the entry level occupations). The Navy, in deciding which rating<sup>2</sup> is best suited for a recruit, must strike a careful balance between filling vacancies with the most qualified applicants and satisfying the applicants' career preferences. Much is at stake in the process. Research in civilian and military organizations has produced the following findings.

- Lack of qualifications can lead to training failures and degraded job performance (Ree & Earles, 1989; Ree, Earles, & Teachout, 1992; Wigdor & Green, 1991).
- People who occupy jobs that are inconsistent with their interests are less likely to be satisfied with their work (Alley, 1978; Alley & Matthews, 1982; Bizot & Goldman, 1993; Dann, 1974; Echterhaught, Reilly, & McCaffrey, 1973; Gottfredson & Holland, 1996; Kuder, 1977; Kuncze, Decker, & Eckelman, 1976; Spokane, 1985; Swaney & Prediger, 1985).
- People whose interests are incongruent with their jobs are more prone to leave the organization for other job opportunities (Alley & Matthews, 1982; Hellman, 1998; Jackofsky & Peters, 1983; Mowday, Porter, & Steers, 1982; Spencer & Steers, 1981; Tett, Jackson, & Rothstein, 1991).
- Dissatisfied employees have higher absenteeism on the job, engage in more counterproductive behaviors, and seek alternative employment more often than their satisfied counterparts (Arnold & Feldman, 1982; Ilgen & Hollenbach, 1977; Krausz, Koslowsky, & Eiser, 1998; Mangione & Quinn, 1975; Smith, 1977; Terborg, Lee, Smith, David, & Turbin, 1982; Waters & Roach, 1971, 1973).

The U.S. Navy Personnel Research, Studies, and Technology (NPRST) Division, Bureau of Naval Personnel asked the Human Resources Research Organization (HumRRO) to develop an interest inventory suitable for use in the Navy automated classification and training reservation system, which is called Personalized Reservation for Immediate and Delayed Enlistment (PRIDE). The inventory envisioned by the Navy will be used in conjunction with existing screening measures for educational background, mental aptitude, medical conditions, and prior legal history. The purpose of the Navy interest inventory will be to increase job satisfaction and reduce first term attrition by improving the match of recruits to ratings. This will be accomplished by

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<sup>2</sup> The term rating is synonymous with Navy job. Consistent with Navy usage, both terms will be used throughout this document.

including an interest function, based on interest composites developed for entry-level ratings or job families, in the Rating IDentification Engine (RIDE).<sup>3</sup>

## Navy Interest Inventory Requirements

Lightfoot et al., (1999) conducted an exhaustive review of existing inventories available in the civilian and military sectors for NPRST and found that none was appropriate for the Navy's needs. As part of that study, a set of requirements for a Navy-specific interest inventory was developed that would overcome the limitations of the existing civilian and military instruments.

The first requirement is that the interest inventory must be developed for use in making better classification (i.e., assignment of recruits to ratings) decisions. Interest instruments typically are used as aids for making career choices in vocational counseling settings. The underlying assumptions of valid measurement for each use differ. Accurate Navy classification decisions require valid instruments that are designed to make discriminations among ratings or families of ratings. Lightfoot et al. (1999) recommended that the items in a Navy-specific interest inventory reflect the work activities and working conditions of enlisted ratings. Even when existing inventories use work activity and working condition items, they are designed to tap the six global interest constructs of the Holland model (see Holland, 1985a, 1996), which are often disaggregated into basic interests that reflect broad occupational fields. These instruments would not provide sufficient differentiation for Navy classification.

Further, the traditional approach to interest measurement focuses on the similarities of people's interests within a particular occupation. This approach makes sense in the typical vocational counseling setting in which an individual is relatively unconstrained in his or her decision-making, especially when considering professional occupations. However, a recruit's choice of a rating is highly constrained by aptitude standards and Navy job fill priorities. Therefore, the authors believe that for the Navy-specific inventory to be valid and useful for classification, the development focus should be on the work and the organization. That is, by building an inventory around the characteristics of Navy work rather than around individuals, we can maximize the applicability of the assessment to Navy needs (i.e., classification). This is a new method of interest inventory development (although work activity and work context items are commonly used) and we expect it to make a major contribution to the vocational interest literature, especially as it is applied to military classification.

NPRST researchers strengthened this recommendation by suggesting that a model of Navy-specific vocational interests be developed to further ensure that the inventory reflects the domain of Navy enlisted ratings; applicable to both individual differences in vocational interests and Navy occupations. The present study directly addresses that recommendation.

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<sup>3</sup> RIDE will be the new classification subsystem of PRIDE. It will replace the current algorithm, called CLASP (an acronym for CClassification and Assignment within PRIDE).

The second requirement is related to the first. Most vocational interest theories were created to capture constructs that span the world of work at large, focusing mainly on civilian jobs. Further, many interest inventories emphasize professional and service jobs over non-professional and industrial jobs, because they are created for college-bound or college populations. The conclusion of the Lightfoot et al. (1999) study was that the emphasis on the types of work found mainly in the civilian sector and on non-industrial jobs is wrongly placed in the construction of a military interest measure. The authors recommended that the first step in developing the Navy inventory be a data collection study that provided an understanding of the work of Navy enlisted ratings based on job descriptive information and input from experienced subject matter experts (SMEs).

The third requirement of a Navy interest inventory is that items be developed to measure basic interests that are specific to Navy enlisted ratings. This overcomes a serious limitation of existing interest theories and inventories commonly employed by the Armed Services. It is well known that most ratings and other military specialties fall into two of the global interest domains (realistic and investigative) of the Holland (1985a, 1996) model. Consequently, the inventories based on existing vocational interest theories do not provide adequate coverage of the Navy's interest structure at the basic interest level.<sup>4</sup> This limitation means that existing inventories cannot adequately differentiate the interest structures of Navy ratings, and are inappropriate for personnel decision-making purposes. This flaw is especially critical when a Navy interest inventory will be used to make classification decisions, as will the proposed Navy measure. Optimal classification processes require individual difference measures that are valid for all jobs in the organization and have the capacity to differentiate among jobs to generate accurate choices.

The best way to measure Navy-specific basic interests is to identify actual work activities performed in the ratings. As mentioned above, work activity statements in most interest inventories are designed to be quite general so that they capture the diverse range of duties across the full spectrum of occupations. Because military work in general, and Navy work in particular, is far different from civilian work, general, civilian-oriented work activity statements will not validly and reliably tap Navy-related interests.

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<sup>4</sup> Note for example, the Navy-Specific Vocational Interest Model developed in this study, which is described below, has basic interest categories such as communications installation/repair, navigation theory/practice, skilled console operations, and technical and supply services. Navy SMEs identified these categories as related to important enlisted rating work activities. Yet the basic interests were either absent from or rarely found in the published vocational interest literature. We probably would have missed them if we had not examined enlisted rating job information and obtained SME input into the model.

## Overview of the Model Development Process

The purpose of this report is to describe our model building approach and the resulting Navy-Specific Vocational Interest Model. Our goal was to create a conceptual structure of Navy interests that capitalized on the large body of vocational research but did not suffer from the limitations it has for Navy applications.

We used an iterative method of integrating theoretical research with qualitative data about Navy ratings and work environments. The model will be used to guide the development of the Navy interest inventory and of a procedure for identifying and quantifying job characteristics related to the career interests measured by the inventory.

We began our model building approach by reviewing vocational interest research going back 25 years. We used the existing theories and well-established empirical findings as the basis for postulating two preliminary models—a process model and a content model, which is described later in this report. The process model is an open, input-output feedback system. It depicts the process of making personal career choices based on experiences and interests, which are a result of the environment in which the individual lives and works. The results of the choices become learning experiences that change the individual and lead to subsequent decisions (e.g., staying at or leaving a job, following the original career path, or making a change).

We included the process model in our initial thinking, and describe it in this report, because we found it to be a useful conceptual schema for understanding the role of interests in classification (i.e., entry-level Navy career choice) decisions. It also provides a structure for evaluating the influence of using an interest inventory to aid career decision-making.

The initial content model of vocational interests provided the basis for developing the final Navy-Specific Vocational Interest model. The initial content model is a hierarchical structure of vocational interests, which consists of two levels: a set of global interest constructs, and a set of basic interest facets. The global interests are essentially the six vocational themes or personalities of the Holland model (1985a, 1996), which have strong construct validity support across many studies. The basic interests are associated with work activities and reflect people's likes and dislikes for different types of work. They vary by instrument, but, in general, are formed by conducting a structural analysis (e.g., factor or cluster analysis) of interest inventory items and deriving the underlying dimensions. The basic interests represent fairly discrete occupational areas (e.g., Food Services, Electronics, and Laboratory Technician). External to the content model, but closely related to it, are work context variables that have been found to influence job satisfaction and career choice, although the variables are not vocational interest constructs.

We used the preliminary content model in the second step of our model building method to guide the collection of information about Navy rating work activities and environments. The data collection procedure enabled us to focus on what is unique about military life in the Navy and about performing the work of Navy ratings. In other words, this component of the model building procedure enabled us to tailor the vocational interest model to the Navy. Data collection consisted of reviewing job

description information and obtaining SME judgments about work activities and the basic interests associated with them. We used an iterative process to continuously modify the preliminary content model according to new Navy data as we obtained it. The final Navy-Specific Vocational Interest Model retained the overall structure we gleaned from the literature, but the variables and their relationships were revised to reflect Navy work activities.

## Organization of the Report

The organization of the report is consistent with the method used to develop the Navy-Specific Model of Vocational Interests. This introduction presented an overview of the iterative, theory and data based method used to generate the Navy-Specific Model of Vocational Interests. Other sections summarize the process and content models synthesized from the literature, the Navy-Specific Model of Vocational Interests. Appendix A describes the Navy data collection procedure and is followed by supporting documents.

### Review and Synthesis of the Vocational Interest Literature

The following is a description of the results of a comprehensive review of the vocational interest literature from the past 25 years. The purpose of the review was to develop a conceptual model of vocational interests that could serve as a guide for building a Navy-specific interest inventory and to ground the associated research program in contemporary theory. We found considerable evidence that interests affect job satisfaction and that job satisfaction, in turn, affects personnel retention, but we discovered many unresolved issues as well. For example, what psychological constructs and processes underlie these relationships? How are the constructs organized and how do they interrelate? Finally, how can the existing literature on these topics contribute to the development of an interest inventory for the Navy?

In surveying contemporary interest theories, we found that some theorists addressed the psychological processes involved in occupational choice and preferences (process models), while others specified the major interest constructs along which people and jobs could be shown to differ (content models)—but typically not both. Table 1 shows the major theorists reviewed. In synthesizing their work, a more inclusive view of the findings was taken than is typically the case. Common themes, where they existed, were identified. Among theoretical positions that seemed divergent, we looked for reconciliation at the "deep structure" level where agreement was most probable. Where no reconciliation was possible, we adopted the broader of the competing positions, recognizing that later research findings would distinguish among those that provided the best fit to the data.



**Table 1**  
**Major vocational interest theorists**

Process Theorists	Content Theorists
Bandura, 1977, 1986	Holland, 1985, 1996
Vroom, 1964	Roe, 1956
Lawler, 1973, 1966	Prediger, 1982, 1996
Lent, Brown & Hackett, 1994	Lunneborg & Lunneborg, 1975
Mazen, 1989	Kunze et al., 1976
Deci, 1976	Hogan, 1983
Dawis & Loftquist, 1984	Tracey & Rounds, 1993, 1996
	Osipow, 1990

The division of vocational interest theories into two types led to generation of two initial models—a process and a content model. Both models represent the synthesis of the literature as it relates to the use of vocational interest measurement by the Navy. The process model is described first, because it is a general schema for explaining how vocational interests function in the interaction of people and jobs, within the context of environmental factors. Further, it suggests how interests play a role in career choices. The process model is meant to be a conceptual representation of the complex set of variables and relationships that produce career choice behavior. It was used in the present study to provide a context for understanding the content model of vocational interests, and suggest how vocational interest measurement can be used to predict job satisfaction, and by extension attrition behavior, in a Navy classification framework.

After describing the process model of career choice, preliminary content model of interests is presented, which was the starting point for developing the Navy-Specific Vocational Interest Model. The final version of the model will be the guide for developing the Navy interest inventory and for identifying and measuring job characteristics of ratings that are congruent with the interest constructs in the inventory. In other words, the Navy-specific content model of interests will be the foundation for constructing parallel interest measures of Navy applicants and jobs.

### **Process Model of Career Choice: Constructs and Relationships**

Key elements of expectancy theory (Vroom, 1964; Porter, Lawler, & Hackman 1975; and Mazen, 1989) were adapted and combined with a social-cognitive model of interests suggested by the work of Bandura (1986); Lent, Brown, and Hackett (1994); and further elaborated by Fouad and Smith (1996) to develop the process model of career choice. Figure 1 graphically depicts the model.



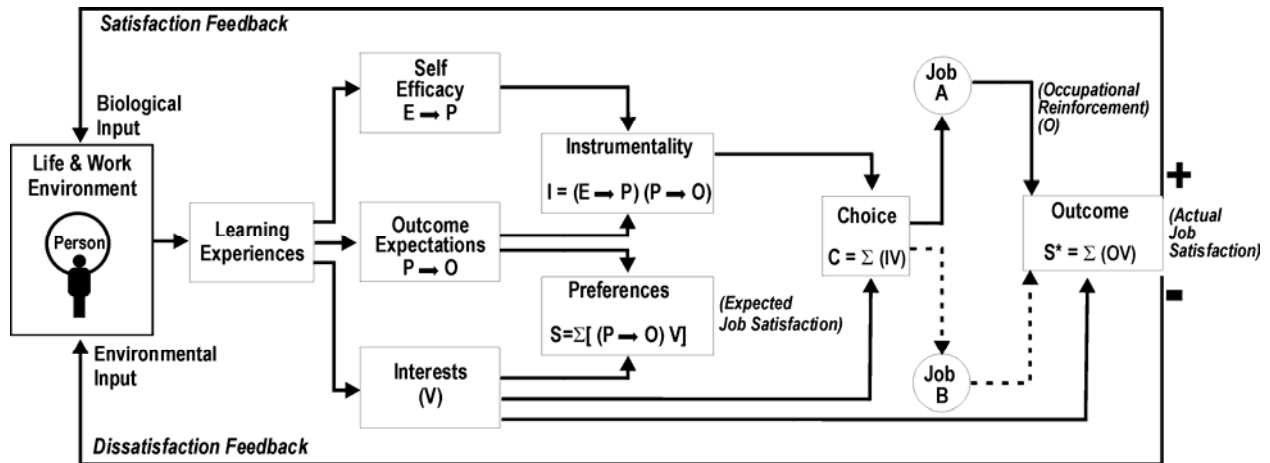


Figure 1. Theory-based process model of Career Choice.

The box on the left side of the figure represents the individual influenced by his or her life and work environments over time. In addition to these external contextual variables (e.g., exposure to a broad range of experiences, socioeconomic status, and educational level), the person is influenced by genetic factors, which are not shown in the model but have complex relationships with environmental variables. Cognitive aptitudes and processes, emotions, and personality variables, other than interests, also are not shown in the model; although it is assumed that they have significant influences on career choices.

Moving to the right, the next box symbolizes learning experiences that occur over time and are jointly determined by environmental and individual difference variables. In this model, self-efficacy beliefs, outcome expectations, and vocational interests are considered to be functions of learning, and, consequently, change over time with experience. Self-efficacy refers to a person's beliefs about his or her competency to successfully perform a task or succeed in an occupation. It is expressed as the likelihood that a person's effort (E) will result in successful performance (P). An outcome expectation (represented as  $P \rightarrow O$ ) is a belief about the likelihood that performing (P) an activity or set of activities that define a job or occupation, at a given level of success, will predictably lead to an outcome (O) that is desirable or undesirable. Outcome expectations are formed through experience. Vocational interest is defined as the attraction (or valence in expectancy theory terms) a person feels for an activity or outcome. Vocational interests have both cognitive and affective components that direct an individual to focus attention on particular activities he or she finds rewarding. The interest term (V) in the diagram is synonymous with what actually gets measured in a traditional interest assessment (i.e., the respondent's reported attraction to selected vocational activities and contexts).<sup>5</sup>

<sup>5</sup> The content model, presented in the following section, describes the nature and structure of vocational interests.

Together, belief in one's self-efficacy ( $E \rightarrow P$ ) in a specific occupational domain and outcome expectations ( $P \rightarrow O$ ) determine the person's perceived instrumentality (represented as  $I$  in the model). This is an expectancy theory term that means a person's perception of desirable outcomes is affected by his or her perceived competency at the task or in the job. If an individual does not believe that he or she will be able to perform successfully on the job due to lack of competency, then the person will perceive the job as not providing desirable rewards. Another way to say this is that an individual's job or career choice is partially determined by the answer to the question: Given the level of competency I think I have to work in that occupation, will I be successful?

Expected satisfaction ( $S$ ) is an affect that is expressed as a function of outcome expectations and vocational interests, and is represented as  $S = \Sigma [(P \rightarrow O)V]$ . Expected satisfaction is related to a person's preference for an activity or occupation, but is distinct from career choice. This distinction is important. Career preferences, which are based on how satisfied a person thinks he or she will be in a particular occupation, are seen as less constrained and less likely to be affected by objective reality.

Note that expected satisfaction is not related to choice or to the outcome (actual job satisfaction). Without such a causal influence on choice or outcome, one might question the inclusion of this variable in the model. This variable was included because so much interest literature has used expected satisfaction as the dependent variable. As such, the inclusion and formulation of this variable draws a clear distinction that expected job satisfaction is quite different from actual job satisfaction.

The choice component is shown in the diagram as mediating between possible competing job alternatives (e.g., Job A vs. Job B). It is represented as  $C = \Sigma (IV)$ . Each of the competing alternatives would be evaluated based on the decision-maker's unique patterns of personal interests ( $V$ ) paired with his or her corresponding instrumentalities ( $I$ ). In other words, people choosing among job alternatives typically factor in considerations about how realistic certain outcomes might be, given their perceived competencies. Along with job characteristics that elicit preferences, environmental factors related to the alternative jobs (e.g., level of compensation, starting date, recruiting incentives, availability of positions) also have positive or negative influences on a person's career choices.

The outcome of a person's job or occupational choice is the actual satisfaction or dissatisfaction ( $S^*$ ) derived from the specific person-job match. Satisfaction or dissatisfaction is an affective reaction to a particular choice. This is represented as the relationship between individual interests in job-related activities or contexts ( $V$ ) and the degree to which the occupation provides the desired outcome ( $O$ ),  $S = \Sigma (OV)$ . Over time the person assesses his or her level of satisfaction, which is conceived as feedback in the model. In other words, the person's satisfaction with a career choice is a function of personal interests and job characteristics, which are either desirable or undesirable. Over time, the individual assesses the level of satisfaction from the job choice—conceived as feedback that results in personal changes that may cause new types of choices later on.

The process model of career choice is recursive. When choice points are reached at Time 1, decisions are based on the current status of the constructs. For a choice made at Time 2, however, intervening changes may have altered one or more of the antecedents that would affect which job choices are made at that time. Where individual interests and work environments provide an optimal match, the incumbent is satisfied. The employer can expect longer tenure on the job from a satisfied worker than from a dissatisfied one—all things being equal. Where there is a mismatch, people will tend to (a) selectively respond to or change the objective environment to make it more compatible, (b) adapt or alter their interests and/or perceptions of the environment, (c) initiate behaviors to seek new opportunities for employment elsewhere, or (d) become problematic enough to warrant special attention or dismissal.

### Application of Process Model to Measurement of Career Choice Satisfaction

In the contemporary workplace, we assume that people differ measurably in their interests (V) in activities and working environments. We also assume that occupations differ in their actual and perceived capacity to provide desirable outcomes (O). Moreover, based on the measurement of people and jobs, we further assume that one can predict the level of personal satisfaction that one might receive from engaging in a particular work situation. The form of these relationships can be summarized by the career choice function as follows:

$$S^* = \Sigma(OV),$$

where:

- S\* is the level of satisfaction or dissatisfaction derived from working in the chosen occupation
- O is the degree to which that occupation provides desired outcomes
- V is the person's level of interest in the work activities and environment.

Although the process model shows a number of constructs which have complex relationships with each other, the variables that are relevant to Navy interest inventory development and validation are Interests (V) and Outcomes (O)—antecedents of actual job satisfaction (S\*). The above mentioned career choice function,  $S^* = \Sigma(OV)$ , can be interpreted as the general form of a regression model that predicts job satisfaction (S\*) as a function of scores on an interest inventory (V), which differentially predicts across a set of jobs or job families that vary in desirability of outcomes (O).

Both an ordinary least squares (OLS) regression model and a hierarchical linear model (HLM) could be used to form differential regression equations of the jobs or job families.<sup>6</sup> HLM has intuitive appeal because it provides a basis for directly measuring the job characteristics that are desirable (the Os in this model). The differential interest composites would be validated in a traditional predictive or concurrent validity study. Because of the strong evidence linking job satisfaction to attrition, satisfaction could be used as the dependent variable in the linear model.

We propose that HLM be used as the analytic framework for constructing interest composites, which capture the variation in ratings or families of ratings as a function of both individual difference and job-related variables. HLM provides the basis for developing a job characteristic measurement procedure that is congruent with the individual differences measurement of interests. An additional benefit of HLM is that it enables the researcher to develop prediction equations for new or restructured jobs without conducting a validation study, as long as job characteristic data can be obtained from SMEs. Finally, HLM is well suited to the measurement of interests for Navy enlisted personnel classification purposes, because it captures the Navy-specific nature of the interests by directly incorporating job characteristics into the computation of composites.

The use of HLM to incorporate job-oriented variables (which are related to individual differences in vocational interests) in composites is a new approach to understanding and measuring the interest structure of occupations. Typically, approaches to describing or grouping jobs according to interest constructs focus on the similarities among people in those jobs or stress person-oriented variables in the job description or categorization process. For example, Holland's (1985a) theory describes personality types and the work environments or occupations in which they can be expressed. In sharp contrast, the approaches taken in the present model development process, and later in designing the Navy inventory, have at their core Navy enlisted rating work activities and environments.

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<sup>6</sup> In evaluating the predictive relationship of interests and outcomes on satisfaction, HLM provides a more comprehensive evaluation of the relationship than does OLS regression (see McCloy, 1994) when the effects of the independent variables (i.e., interests and outcomes) on satisfaction differ as a function of job. In this case, the regression parameters for the independent variables vary as a function of the job. HLM allows "one to quantify the variation in these parameters and to determine if the variation is statistically significant" (McCloy, 1994, p. 67). Analogous to analysis of variance, the regression parameters for each job (i.e., group mean) are compared to an overall mean parameter estimate calculated across jobs (i.e., grand mean). Based on the variability of the individual job regression parameters around overall regression parameter, one can determine whether there are significant differences between the individual job regression parameters. Such an analysis would not be available if separate OLS regressions were run on each job. In addition, HLM also allows one to model the differences in the individual job regression parameters. That is, the individual job regression parameters can be regressed on a new set of predictors. As such we can determine the extent to which the variation in the parameter estimates due to other factors which also vary across jobs, such as promotion rates, Armed Forces Qualification Test (AFQT) qualification, training requirements, etc. In essence, this analysis allows one to evaluate the extent to which these extraneous variables moderate the relationship between a given predictor (i.e., interests) and the dependent variable (i.e., satisfaction).

It is important to mention in closing this section that the functional relationships in the career choice component of the process model,  $S^* = \Sigma (OV)$ , also set the stage for use of an interest inventory and differential interest composites in a classification process in which individuals are differentially assigned to the jobs or job families for which they have the highest  $S^*$  value, all else being equal.

We turn now to the question of a proposed content model of vocational interests. The literature over the past 25 years shows a high degree of convergence on ideas about what types of interests are important and how they might be organized.

## Content Model of Vocational Interests: Constructs and Structures

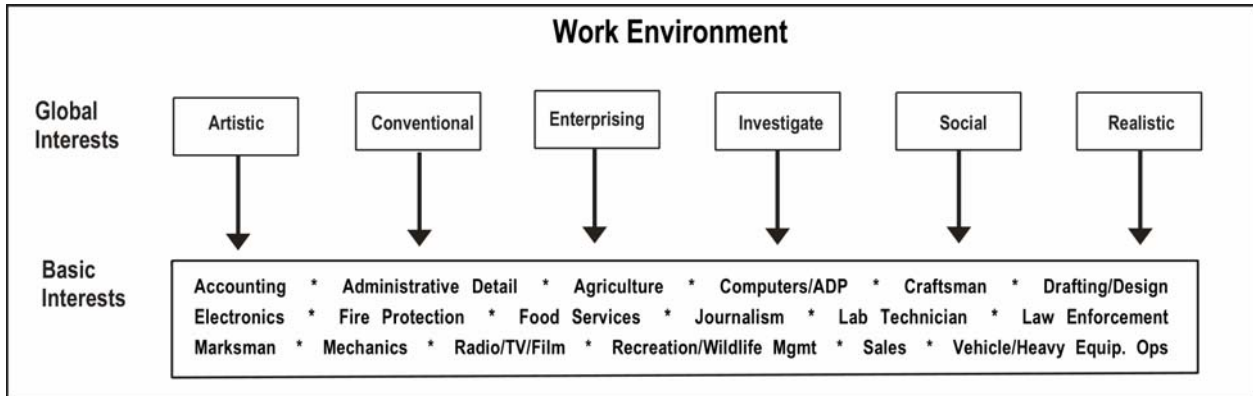
The second of the two types of vocational interest theories that characterize the literature are content theories of interests. One of the central tenets of content theories is the matching of people and jobs. A core assumption of these theories is that people-oriented definitions of interests are congruent with occupational-oriented definitions. As mentioned previously, Holland's (1996, 1985a) content theory of personality types and work environments is inappropriate for interest measurement that is designed to improve Navy recruit-rating classification efficiency. This is because his six global dimensions do not provide fine enough discrimination among Navy ratings. However, the definitions of his six global themes provide good examples of the congruence of the two sides of content-based interest measurement.

On the people side, Holland defines his six global themes in terms of interest-related personality characteristics and preferences for activities and occupations. For example, people who have strong Investigative interests are "analytical, intelligent, skeptical and having academic talent—lacking in interpersonal skill" (Holland, 1996, p. 398). They like "exploration, understanding and prediction or control of natural and social phenomena" (p. 398). Investigative work environments or occupations require "analytical, technical, scientific, and verbal competencies" (p. 399). These descriptions differ from the process-oriented definition of interest presented above. However, they share the notion of a person's attraction to a work activity or occupation.

This emphasis on the matching of people and jobs in terms of interests is well-suited for classification and for the development of parallel approaches for measuring individual differences in Navy-specific interests and interest-related job characteristics, which discriminate among ratings or job families. Therefore, we decided that the content theories were the best sources for developing a Navy-specific model of interests.

It was concluded from the review of content theories that a two-level hierarchical model validly describes content-oriented vocational interests and would be an appropriate foundation for our model building effort. The preliminary content model of vocational interests is presented in Figure 2. The higher level interests are Holland's global constructs, several of which have been renamed using labels employed by other researchers (See Table 2). The lower level constructs are basic interests, which are commonly paired with Holland interest themes (e.g., in the Strong Interest Inventory [Harmon, Hansen, Borgen, & Hammer, 1994]). They are more specific and more closely

related to occupations. The 6 global interest constructs and 18 basic interest facets are described below. Further, the relationships among the variables within and between levels are discussed.



**Figure 2. Theory-based content model of vocational interests.**

In addition to content-oriented interests, the theory-based model includes work environment variables that reflect broad contextual factors related to a person's preference for work activities and occupations. A content-context model was generated because the literature indicates that adding work context items to inventories improves person-job matching. The work environment variables are also described below and Table 3 lists researchers who have studied them.

**Table 2**  
**Global interest constructs identified in vocational interest literature<sup>a</sup>**

<b>Global Interests</b>	<b>Authors</b>	<b>Alternative Construct Terms by Author</b>
Social vs. Realistic	Lunneborg & Lunneborg Holland Prediger Alley & Harville	Social vs. Technical Social vs. Realistic People vs. Things Process vs. Product Oriented
	Kunce et al.	Personal vs. Impersonal
Investigative vs. Enterprising	Lunneborg & Lunneborg Holland	Science vs. Business Investigative vs. Enterprising
	Alley & Harville	Reflective vs. Active
Artistic vs. Conventional	Lunneborg & Lunneborg Holland	Artistic Artistic vs. Conventional
	Alley & Harville	Interpretive vs. Concrete
	Kunce et al.	Abstract vs. Practical

<sup>a</sup>The "vs." in the global interest identification should not be taken to indicate bipolarity. The constructs are paired this way because there is a tendency for people to be high on one or the other of these constructs but not both. This does not, however, preclude people from having a high standing on each construct.

**Table 3**  
**Work environment variables identified in vocational interest literature**

<b>Work Environment Variables</b>	<b>Authors</b>	<b>Alternative Construct Terms by Author</b>
Office vs. Outdoor	Lunneborg & Lunneborg Alley & Harville	Organizational vs. Outdoor White Collar vs. Blue Collar
	Prediger Gottfredson Alley & Harville Kunce et al.	Prestige Prestige Prestige Professional vs. Technical

### Global Interest Constructs

These higher-order interest constructs recur in the work of many researchers (see Table 2) and appear to be stable representations across gender, race, and other cultural boundaries. For our purposes, they provide an organizing framework for understanding the broadest conceptualization of vocational interests and aided in comparing concepts and findings across a number of different studies. The six interests are Artistic, Conventional, Enterprising, Investigative, Social and Conventional. There is convincing empirical support for these constructs coming principally from the work of Alley and Harville (1995), Hogan (1983), Holland (1996,1985a,b), Kunce et al. (1976), Lunneborg

and Lunneborg (1975), Osipow (1990), Prediger (1996, 1982), Roe (1956), and Tracey and Rounds (1996, 1993). These factors are content-oriented in that they represent broad thematic preferences for specific kinds of activities defined by the dimensions.

- The Artistic interest construct characterizes jobs that are described as largely conceptual, involving abstract ideas and a visionary perspective (e.g., media specialist).
- Conventional jobs are more concrete in nature, requiring rigid adherence to procedural guidelines, and are more data-oriented (e.g., accounting specialist).
- Enterprising interests characterize jobs requiring active responses, enterprising activities and an entrepreneurial perspective (e.g., program manager).
- Investigative interests are reflected in jobs that are investigative, reflective and introspective (e.g., lab technician).
- Social interests are reflected in jobs where the incumbent deals primarily with people, where interpersonal skills are emphasized and where activities are typically process rather than product oriented (e.g., instructor).
- Realistic interests characterize jobs in which the incumbent deals primarily with objects or things, interpersonal activities are minimized and the emphasis is on concrete products rather than processes (e.g., mechanic).

## Basic Interest Facets

On the lower tier of the content model are basic interests. These constructs are typically based on factoring or clustering a large number of interest items and noting subsets of items that group together. That is, they correlate highly among themselves and are relatively independent of other item clusters.

Discrete job activities represent one type of interest inventory item, and as such, constitute the most basic units of analysis. Job activities might include such things as interpreting aerial photos, collecting evidence at a crime scene, installing plasterboard and paneling, welding metal parts, or replacing electronic circuits. Interest inventories are usually developed to include a broad array of activities and contexts, which are described below. The respondent is then asked to identify those statements with strong positive or negative valences.

The core set of basic interests listed in Figure 2 are reported in many published inventories and there appears to be reasonably consistent agreement on their nature and value for measurement and reporting purposes. Most are general enough to span a number of specific occupational categories. Basic interests can be thought of as more discrete facets of the higher order dimensions. A survey of basic interest scales referenced in civilian and military interest inventories showed that the 18 scales in Figure 2 were included in 2 or more inventories (Lightfoot et al., 1999).



## Work Environment Variables

Two work environment variables in Table 3 were adapted primarily from the work of Lunneborg and Lunneborg (1975) and Prediger (1996, 1982): Office vs. Outdoor and Status/Prestige. These are context rather than content dimensions, describing overarching preferences for specific kinds of work settings at a general level. The Office vs. Outdoor dimension is anchored at one extreme by preferences for clean, safe, environmentally-controlled work settings with low physical demands (e.g., office work) and at the other pole by preferences for varied work settings that may be open air, at times excessively hot or cold, dirty, physically demanding, and typically performed in environmentally uncontrolled setting (e.g., aviation machinist mate).

The Status/Prestige dimension is anchored at the higher end by people seeking more prestigious occupations. They have high aspirations and are willing to commit early investments in training and education for delayed returns with potentially high yield. Occupations at this end of the continuum require lengthy and sometimes expensive training commitment, are more selective in their entry requirements (e.g., higher AFQT) and are generally more financially rewarding than occupations at the mid and lower ranges. At the opposite end are occupational pursuits that have lower initial investments in training, requiring fewer technical skills while offering immediate opportunities for hands-on work. The Status/Prestige label does not transfer well to the Navy enlisted personnel work environment, because all sailors of the same rank are equal in status and prestige no matter what their jobs. A more appropriate label is High/Low Training Requirements, which captures virtually the same content and is highly relevant to the Navy.

## Structural Relationships among Interest Variables

There are two important structural characteristics of the hierarchical content model. First, the hierarchy is reticulated. This means that the elements in the lower, basic interest, level of the model can be related to more than one of the elements in the upper, global interest, level. For example, the Sales Basic Interest is probably related to the Enterprising, Social, and Conventional Global Interests.

Second, the elements within a given level on the hierarchy may be correlated. For example, we would expect the Investigative and Realistic global interests to be positively correlated. In contrast, the Investigative and Enterprising interests may be negatively correlated. At the basic interest level, Accounting and Administrative Detail would be positively correlated, while the correlation between Fire Protection and Radio/TV/Film is probably near zero or negative. To be most general, we have chosen to represent the six global interest constructs as largely independent, rather than adopt alternative methods of representation. We also did not make an a priori stipulation of how specific data points are typically configured in the space represented by the global interest (i.e., circular, hexagonal, spherical, etc.). Characteristic configurations of the data, if they exist, can be discerned in later phases of theory testing and development. Placement of individuals (and occupations) within the multidimensional space can be accomplished with traditional Cartesian coordinates.

## Use of Preliminary Content Model to Guide Data Collection

As mentioned above, the theory-based content model was the foundation for developing the Navy-Specific Vocational Interest Model through a qualitative data collection and analysis of enlisted rating information. Appendix A describes that procedure in detail. The purpose was two-fold: (a) to refine and extend the content model, mainly in terms of the basic interest level, so that it would reflect the content of Navy jobs, and (b) to identify candidate work activities and contexts that might serve as stimulus items in constructing the inventory. The final model retained the six Holland global interest constructs, and rationally placed the Navy-specific basic interests into the Holland structure. The model will be validated as part of the interest inventory development process, and will determine whether the Holland constructs hold up for Navy jobs and applicants. If not, the model will be modified. Despite the global interest structure, we anticipate building basic interest scales to obtain the level of differentiation that is needed for developing useful classification composites.

The initial step in tailoring the theory-based content model to the Navy was to catalog a list of important work activities representative of all the entry-level ratings. We started with over 800 work activity statements. Two project staff psychologists conducted a modified Q-Sort analysis. They independently sorted the 800-plus statements into categories corresponding to the preliminary list of 18 Basic Interest areas obtained from the literature review. Non-matching tasks were assigned to a 19<sup>th</sup> "miscellaneous/ unclassified" category. Overall, about 600 of the 800 tasks fell into categories specified in the preliminary basic interest list. Then a systematic procedure was followed to create an initial list of basic interests that would be used by Navy SMEs to start refining the list.

Categories from the researchers' list that contained few if any Navy tasks were eliminated from further consideration. Categories that included a good representation of Navy tasks were retained, although in some cases they were renamed to provide a closer fit to the task content. Where considered appropriate, categories with extremely large task listings were subdivided and renamed to make finer content distinctions.

Unclassified work activity statements (approximately 200) were then independently Q-sorted into homogeneous categories and given provisional category designations. After both Q-sorts had been completed and compared, several completely new basic content areas were added to the list.

Finally, the list was supplemented with three additional content areas, two based on unstructured discussions with Navy SMEs (Aviation Interests and Maritime Interests), and one inserted to maintain coverage of the higher-order interest factors (Applied Mathematics). The final list of basic interests, along with general activity descriptions can be found in Appendix F.

The next section describes the Navy-Specific Vocational Interest Model developed by integrating the theory-based, content model with the qualitative data obtained from enlisted rating job descriptions and SME workshops.

## The Navy-Specific Vocational Interest Model

The Navy-Specific Vocational Interest Model is closely related to the theory-based, work content model described previously. However, it is tailored to Navy enlisted ratings and work environments. Further, the model depicts the process for using it to develop the Navy interest inventory and to create a method of identifying and measuring job characteristics that are congruent with the constructs assessed by the interest inventory.

Figure 3 presents the model. It has a hierarchical structure of basic and global interests. The foundation upon which the interest constructs rest is the set of 674 important work activities of entry-level enlisted ratings contained in Appendix E. Table 4 below lists the final set of 36 basic interests linked to the work activities by experienced SMEs according to the procedure described in Appendix A. The global interest factors are the six Holland global interests: Artistic, Conventional, Enterprising, Investigative, Social, and Realistic. The interest content structure is embedded in the Navy work environment. The contextual variables are those of the theory-based model and are listed in Table 3: Indoor/Outdoor and High/Low Training Requirement.

Appendix G presents a different formulation of the model (but excludes the context variables) developed at the conclusion of the data collection procedure. It shows hypothesized relationships of Navy-specific basic interests to Holland's global interests. The uneven representation of enlisted ratings across the global constructs is clear. This supports the idea that interest scales should be developed at the basic, not global, interest level to obtain enough discrimination for classification. Appendix G also lists the general activity descriptions for the basic interests. This information, along with the more specific work activity statements in Appendix E, provides the basis for developing both the interest inventory and a method and instrument for measuring interest-related job characteristics—the main purposes for developing the Navy-Specific Vocational Interest Model.

### Structure of the Basic and Global Interests

Examination of Table 4 shows that the set of basic interests spans different levels of specificity. The goal was to keep as many of the basic interests as possible at the same level, but it was important to include basic interests at different levels of specificity when it served a useful purpose. Most basic interests are fairly limited in scope, covering several related work activities and jobs (e.g., office administration and vehicle mechanics). But there are a small number of basic interests that are slightly broader, for example, Aviation Interests, Maritime Interests, and Weapons Handling/Maintenance. These three moderately general categories were generated in an unstructured discussion with SMEs, who told us those interests were strong motivators for many enlisted personnel to enter the Navy, choose a particular assignment, and honor the first term contract. Finally, there are two very general basic interests—Applied Mathematics and Natural and Physical Sciences. HumRRO staff researchers added the two broadest interests also because we believe they are pervasive across ratings.

## Navy-Specific Vocational Interest Model

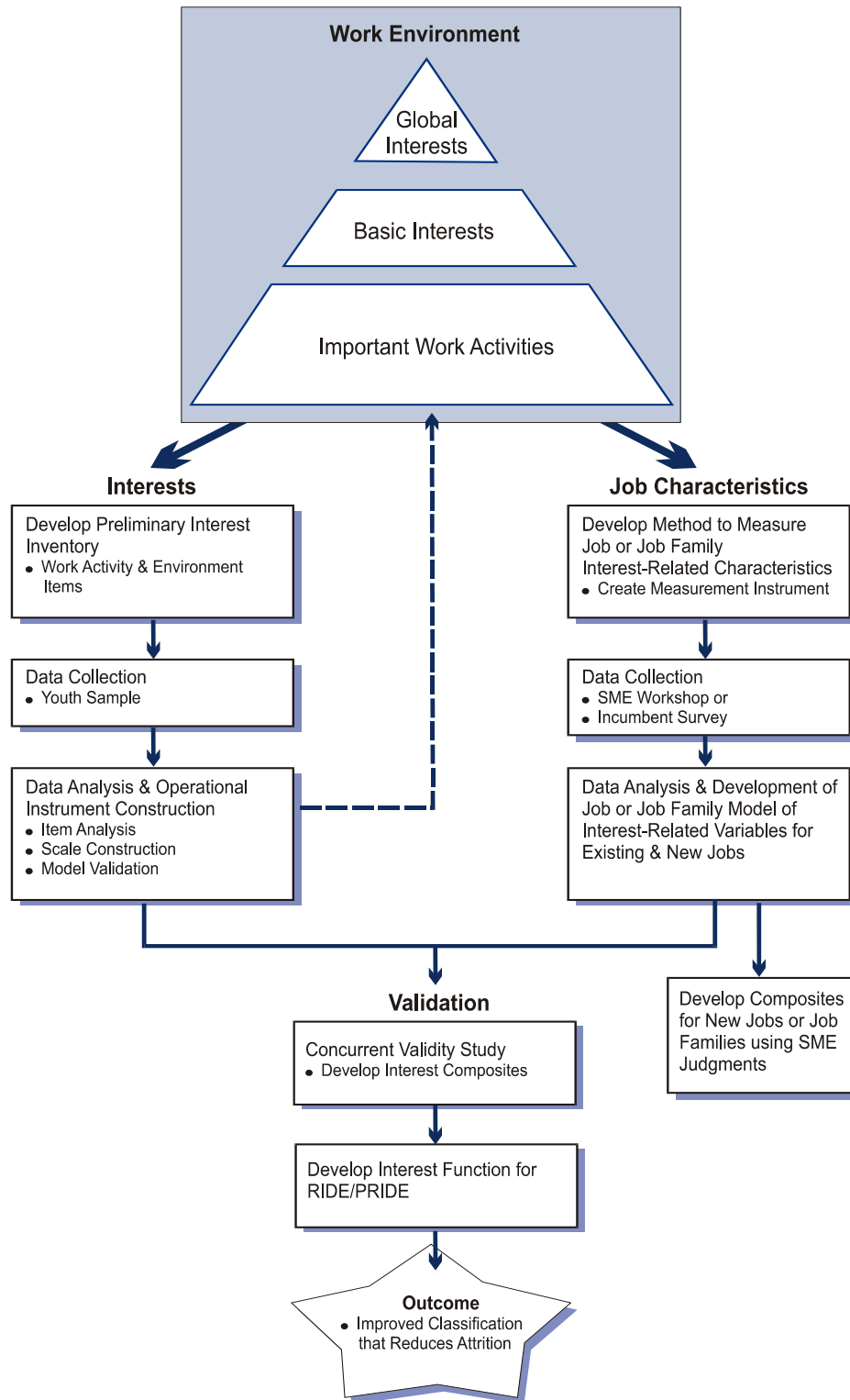


Figure 3. Navy-specific vocational interest model.

Although there is strong research evidence that the global and basic interests are not independent within level, at this point in the development process we assumed a one-to-one correspondence between basic and global interests. That is, we assumed that each basic interest is mapped to one global interest. We will analyze the relationships within and across interest levels during instrument construction, specify the relationships based on our results, and modify the model if necessary.

**Table 4**  
**The 36 basic interest facets of the Navy-specific vocational interest model**

Air Operations	Law Enforcement
Air Systems Installation/Repair	Maritime Interests
Applied Mathematics	Media Arts
Aviation Interests	Medical and Dental Services
Communications Installation/Repair	Medical and Dental Technical
Communications Operations	Metal Crafts
Computers/Information Technology	Natural and Physical Sciences
Construction Crafts	Navigation Theory/Practice
Drafting/Design	Office Administration
Electrical Systems Installation/Repair	Plumbing Systems Installation/Repair
Electronic Systems	Skilled Console Operations
Emergency Services	Teaching/Counseling
Engine Mechanics	Technical/Supply Services
Environmental Management	Vehicle Maintenance
Financial Management	Vehicle Mechanics
Hotel/Restaurant Management	Vehicle/Heavy Equipment Operations
Hydraulics Systems Maintenance	Weapons Handling/Maintenance
Information Analysis	Weather Forecasting

### **Description of How the Navy-Specific Vocational Interest Model Will be Used**

The purpose of the model is to guide construction of a Navy-specific interest inventory and a method and instrument for measuring the interest-related job characteristics of existing, new, or restructured ratings. The center section of Figure 3 is a two-pronged flow diagram that depicts how the model will be used for these purposes.

The interest branch of the flowchart outlines the steps for the interest inventory and the job characteristics branch outlines the basic steps needed to develop the interest-related job characteristics model.

The two procedures are joined for the concurrent validity study and development of interest composites that predict first-term attrition and/or job satisfaction. As mentioned in Chapter 1, CLASP, the Navy's classification subsystem within PRIDE is concurrently being revamped. The new classification algorithm will be called RIDE. Part of the development process will be to construct a classification-efficient interest function and to evaluate it through statistically based classification simulation studies. The expected outcome is improved recruit-rating matches that reduce first-term attrition.

### Development of the Navy-Specific Interest Inventory

The first box on the interest branch of Figure 3 represents the next phase in creating the inventory—developing the preliminary interest items. Items will be written for each of the basic interest constructs identified in the content model. As discussed above, the content model was developed, in part, by sorting activity statements into homogeneous clusters, such that each cluster defined a basic interest construct. These statements (which are presented in Appendix E), therefore, represent a good place to begin the process of developing Navy-specific items for the interest inventory. To change the work activity statement into items appropriate for inclusion in the interest inventory we will need to carefully modify the wording of the statements. In particular, most of the activity statements use technical terms that would not be familiar to most recruits. We have already had SMEs have already done some preliminary work on rewriting the activity statements so that they are understandable to Navy applicants. Part of the item development process, which may include SMEs, will be to further refine the activities and to write additional statements where needed. Items from previous military inventories may be used to boost our pool. In addition, items will be written that tap the work environment variables in Table 3 (see Chapter 2), because research indicates that preferences for different types of working environments affect career choices. The goal will be to create an item bank of approximately three times the number of items desired (assuming the final instrument will contain 4 items for each of the 36 basic interests, we will need to develop approximately 432 items). The second box on the interest branch of the flowchart represents the data collection task of this study. We suggest that the instrument be fielded with subjects who are similar to Navy applicants in ability profiles and demographic characteristics.

The third box represents data analysis and construction of the operational instrument. We will conduct item level analyses on items written for each scale. In particular, we will drop those items with restricted ranges of responding, and/or low item-total correlations. Gender and racial group differences will also be examined for each item scale.

We will also evaluate the instrument at the scale level. Internal consistency reliabilities will be evaluated for each scale. An evaluation of the scale intercorrelations will also be made. To examine the latent structure of the scales, scale-level factor analyses will be conducted, and the results compared to the Navy Specific Vocational



Interest Model. If there are differences between the factor structure and the model structure, then we will tentatively propose changes in the Navy-specific model and conduct further research in the concurrent validity study to firmly establish the content model of Navy vocational interests. The dotted line that goes from the third box on the left back up to the model symbolizes possible modification of the model based on Navy data.

We will also evaluate the relations between the basic interest scales and the Armed Services Vocational Aptitude Battery (ASVAB). Although some significant correlations would be expected (for example, between a basic interest in vehicle maintenance and ASVAB Auto Shop), we would generally expect modest correlations between the basic interest and ASVAB scales.

### Development of a Procedure to Identify the Interest Structure of Navy Ratings

The job characteristics branch of the flow chart represents the process of developing a method and an instrument for measuring job characteristics that are congruent with the inventory measures. If an HLM model is used, then researchers will have the capability to evaluate new or restructured ratings in terms of their basic interest categories. The new ratings could then be assigned interest composites and added to the classification system without conducting a validation study (this is depicted in the fourth box of the job characteristics branch).

Designing a method to define and measure rating interest structures was beyond the scope of this study and is intended to be conducted parallel to the inventory development process. The first author along with other HumRRO researchers designed a similar method, based on HLM, to measure optimal classification effects in the assignment of Air Force recruits to entry-level technical training courses (Lightfoot-Statman, Gribben, Naughton, McCloy, & Yadrick, 1998). This HLM approach was used successfully in a joint-service selection validity study of the ASVAB (Harris, McCloy, Dempsey, et al., 1991) and in an ASVAB classification simulation study for the Army (Harris, McCloy, Dempsey, DiFazio, & Hogan, 1993).

The first box on the job characteristics branch of Figure 3 represents the development of a method and a measure to evaluate the interest-related job characteristics of entry-level ratings. In essence the researchers must identify a set of work-related variables, which are congruent with those measured in the interest inventory. The objective is to use the predictor and job variables to create an HLM of job-specific (or occupation-specific) prediction composites. The first level in the hierarchy is formed by the predictor variables; in this case they would be the interest scales. The second level is formed by the interest-related job characteristic variables. One potential approach for developing the interest-related job characteristic variables for the HLM model might be to use the rating data that was collected in the present study to create a manageable set of general work activities.

The second box on the job characteristics branch represents the data collection process. An SME panel would be used to critique and modify the general activities. Then a second panel would be convened to score the 70 or so entry-level ratings on the

activities. Measures of importance would probably be adequate. A better second step would be to field a short survey with detailers and supervisors so that there would be multiple ratings on the activities. This would allow performance of some basic statistical analyses on the general activities. However, the HLM model could be used with SME data, if necessary.

The third box represents the formation of the job characteristics model. Once we have identified the general work activities associated with each rating, we would use this data to create profiles of interest-related job characteristics for each rating or job family. The fourth box indicates that the interest-related job characteristics model can be used to develop rating or job-family-specific composites for new or restructured jobs using SME judgments which replace a full-blown validation strategy.

At this juncture, a concurrent or predictive validity study will be conducted. This is depicted by the first box in the validation branch, which receives input from the individual differences effort and the job-related effort. The job characteristic profiles would be entered into the HLM procedure, along with interest scale scores, to produce rating- or job-family-specific interest composites. HLM produces stable estimates of job-specific composites because it uses all of the individual differences data (both predictor and criterion) to compute a master equation, which is tailored to each rating or job family according to the values of the job characteristics for that job or job family. Consequently, cross-validation can be avoided, reducing the need for large within job sample sizes. However, the procedure requires at least 20 and preferably more (30–50) jobs to obtain stable estimates of the job characteristics variables. The principal criterion variable can be either first-term attrition or job satisfaction. Attrition is preferable because it is one of the primary variables of interest to the Navy and has direct effects on recruiting and personnel costs. However, job satisfaction has been shown to be related to attrition and the use of this variable allows for a simpler concurrent validity study design.

Once valid interest composites, which discriminate across ratings or job families, are developed, and then the interest function in RIDE/PRIDE can be created. This is reflected in the last box in the validation branch of Figure 3. A statistically based classification study should be conducted to compare the reduction in attrition or increase in job satisfaction using alternative interest composites and functions. Selection of the best composites and algorithm should produce a statistically and practically significant reduction in first-term attrition.

## **A Potential Future Use of the Navy-Specific Vocational Interest Model**

NPRST would like to use the Navy-Specific Vocational Interest Model to create continuously refreshed pools of interest inventory items and congruent job characteristic items. We suggest using the rating work activities, from which the inventory items and job characteristic variables will be developed, as the basis for this potential function. Once the inventory and job measurement instrument are developed and the model is validated, then researchers could investigate a procedure to maintain a work activity database that is regularly updated and evaluated for quality control.



A methodology could be created for turning new or modified work activities into person- and job-related items. A decision support system also could be developed to simplify this task and evaluate the items. However, it must be administered by mid-level enlisted personnel who are trained in the method, its objectives and the critical need for regular quality control to maintain the integrity of the method and the validity of the RIDE interest function. This notion is an innovative approach to measurement and validation that could make an important contribution to Navy classification, with potentially great savings in dollars and resources over time.

### **Meeting the Requirements for Building a Classification Efficient, Navy-Specific Interest Inventory**

Previously we recapped the three requirements for a Navy-specific inventory, designed for classification, which were set out by Lightfoot et al. (1999) in a previous study. The development approach for, and structure of, the Navy-Specific Vocational Interest Model fulfills those requirements.

The work activities are the key components of the model, because they insure that the model is defined in terms of job-related variables, instead of the similarities in interests among people, as is typically the case. The use of work activities that elicit Navy-specific basic interests, which discriminate among ratings or families of ratings, is necessary for obtaining positive classification results. The model development strategy was uniquely designed to support Navy classification, instead of a general career counseling application, for which most interest theories and inventories are designed.

The use of enlisted rating work activities and SMEs, who linked them to Navy basic interests, also insures that the model, the inventory, and the job characteristics instrument will be Navy-specific, instead of broadly representative of most occupations in the economy. Further, the use of Navy work activities, which were linked to Navy-specific basic interests, overcomes the limitations of most instruments that measure Holland's global interest themes—they do not provide adequate discrimination among Navy ratings, because they fall mainly into the investigative and realistic global interest categories. Although Holland's six global interests form the top level in the hierarchical model, they are placeholders at this time. Once item data are collected, the model will be validated to determine whether the Holland themes hold up when the instrument is derived from Navy work activities.

## Summary

In summary, the Navy-Specific Vocational Interest Model was developed through an iterative, partially theoretical and partially empirical method that insured the model was grounded in current interest theory and tailored it to the Navy's work and classification needs. The model will provide the basis for measuring individual differences in Navy applicant interests and interest-related job characteristics, which differentiate ratings or families of ratings. It can be used to add new or revamped ratings to the interest function in RIDE/PRIDE simply by obtaining SME data on the job characteristics variables, instead of conducting a validation study.

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**Appendix A:  
Data Collection Procedure for Development of Navy  
Vocational Interest Model**



## **Data Collection Procedure for Development of Navy Vocational Interest Model**

The data collection and analysis phase of the project used the basic interest components identified from the literature (discussed previously) to develop a Navy-Specific Vocational Interest Model. This was accomplished by completing five major tasks, as follows:

- Task 1: Develop preliminary lists of rating work activities, working conditions, and training requirements
- Task 2: Finalize information about the work activities, working conditions, and training requirements
- Task 3: Link work activities to basic interests
- Task 4: Finalize set of basic interests
- Task 5: Develop Navy-Specific Vocational Interest Model

The procedures followed to complete each major task are described in detail below.

### **Task 1: Develop Preliminary Lists of Rating Work Activities, Working Conditions, and Training Requirements**

The first step in developing a preliminary list of activities, conditions, and training requirements was to determine the ratings to be represented in the interest model. It was decided jointly by NPRST and HumRRO project staff that the model should reflect only those ratings into which new recruits would be classified. The list of ratings included in this project and for which information was collected is presented in Appendix B.

HumRRO project staff reviewed various documents that described the relevant enlisted ratings, including the aids used by Navy Classifiers to place new recruits into jobs. This review of documents served a dual purpose. First, the review enabled HumRRO project staff to develop a general understanding of the Navy and the jobs performed by its enlisted personnel. Second, information obtained from the review was used to develop a preliminary list of rating-specific work activities, working conditions under which those activities are performed, and the training requirements associated with the ratings. This information was important to ensure that the interest model reflected the content and context of work performed by the Navy's enlisted personnel.

Based on information obtained from the review, HumRRO project staff prepared a preliminary list of activities, working conditions, and training requirements for each relevant rating. Then these preliminary lists were provided to a single subject matter expert (SME) for feedback. This SME was a Navy Personnel Specialist with extensive experience as a Classifier and who was at least generally familiar with all relevant enlisted ratings. The SME was asked to review the rating activities, working conditions, and training requirements listed for each relevant rating and to recommend changes, as

appropriate. These changes included additions, deletions, and rewording of the activity statements, working conditions, and training requirements. Feedback from the SME about each relevant rating was incorporated into the preliminary lists.

## **Task 2: Finalize Information about the Work Activities, Working Conditions, and Training Requirements**

A workshop was conducted to finalize the preliminary information about the rating activities, working conditions, and training requirements. The workshop was held in the Washington, DC metropolitan area, and a total of 26 SMEs participated. Approximately two weeks prior to the workshop, the SMEs had been briefed about the project and the need for their input. The workshop was divided into two sessions, with each session lasting one-half day. All SMEs participating in this workshop were experienced Enlisted Community Managers or Technical Administrators. The purpose of each workshop session was the same in that each SME was asked to (1) review the preliminary lists and revise them as needed, and (2) provide importance and relative time spent judgments for each work activity statement.

Workshop participants were provided packets of materials that included one or two pages of information (i.e., work activities, working conditions, and training requirements) about each relevant rating. The participants were instructed to go through the packet and separate the ratings into two stacks: (1) one stack that contained ratings for which they had experience and (2) one stack that contained ratings for which they had no experience or familiarity. HumRRO project staff then collected the stacks of materials identified by each participant as not being within their expertise so that subsequent information was obtained only from participants who were familiar with a given rating.

The participants were requested to review the work activity statements, working conditions, and training requirements for each rating that remained in their packets and make all necessary revisions. For the most part, these changes included additions, deletions, and rewording of the activity statements, working conditions, and training requirements. The changes also included identification of ratings that had become obsolete and/or had been combined into a single rating.

After the participants had finished reviewing and revising the information, they were asked to provide judgments about each work activity statement. The participants were presented 5-point scales to assist them in providing judgments about the (1) importance of the activity to the rating and (2) time spent performing that activity relative to the other activities performed for that rating. The two scales were as follows:

*Importance (I):* How important is this activity to the rating/job?

- 1 = Unimportant compared to the other activities
- 2 = Minimally important compared to the other activities
- 3 = Important compared to the other activities
- 4 = Very important compared to the other activities
- 5 = Extremely important compared to the other activities

*Relative Time Spent (RTS):* How much time does a person in this rating/job spend on the activity relative to the other activities?

- 1 = Much less
- 2 = Less
- 3 = As much as the others
- 4 = More
- 5 = Much more

The full set of materials, including instructions, that were provided to SMEs who participated in this workshop are presented in Appendix C.

HumRRO project staff entered the SMEs' judgments into a database and calculated descriptive statistics. A description of the database created for this project, along with the variables included in it is presented in Appendix D. The final analysis showed very little variance in the SMEs' judgments of relative time spent. Therefore, "critical" activities were determined using only the SMEs' importance judgments. Critical activities were identified as those that received a mean importance judgment of 3.5 or greater. Application of this criterion identified as critical 674 (out of 869) activities across all relevant ratings. A complete list of the resulting critical activities is presented in Appendix E.

### **Task 3: Link Work Activities to Basic Interests**

After the critical activities were identified, it was necessary to link them to potential vocational interests, which will be measured by the interest inventory. The first step in completing this task was to ensure the vocational interests identified earlier from the literature were reflective of those captured by the Navy's various enlisted ratings. HumRRO project staff conducted an initial mapping of the critical activities to the interests identified from the literature. As a result, several vocational interests were added and other vocational interests were modified slightly to capture the activities not reflected in the interests identified from the literature.

A second workshop was conducted to obtain information about the linkages of rating work activities to basic vocational interests. The workshop lasted a full day and was held in Millington, TN. A total of 10 Navy SMEs participated in the workshop. Each SME had previous experience as a Classifier and/or a Detailer and was, therefore, familiar with all relevant ratings represented by the activity statements.

The workshop began with a brief introduction and overview of the project. The SMEs then were provided materials including (a) 21 3 x 5 cards, with each card containing a separate basic vocational interest and (b) 674 strips of paper, with each strip containing

a separate work activity statement. The SMEs were instructed to spread out the 3 x 5 cards in front of them and become familiar with the basic interest presented on each card. They were then asked to read the first activity statement, decide which of the basic interests best represented that activity, and place it next to the corresponding card. The SMEs were to follow these procedures for all remaining activity statements. If the SMEs could not link an activity statement to an existing basic interest, they were provided a blank card and asked to create a new vocational interest to represent that activity. As SMEs created new basic interests, they were shared with the entire group of participants for consideration in subsequent linkages. The SMEs also were asked to modify the wording of an existing interest, if necessary, to ensure it appropriately captured the vocational interests reflected in the various enlisted ratings. The SMEs worked independently to provide the work activity--basic interest linkages described above.

After the SMEs completed their individual tasks, a group discussion was held. The major purposes of this discussion were to obtain (1) general feedback from the participants about the comprehensiveness and accuracy of the basic interests and (2) participants' input as to the priority of the various activities linked to a given basic interest.

An analysis of the linkage information by HumRRO project staff resulted in identification of 36 basic vocational interests. Additionally, each basic interest was described by one to nine general activities, which were compilations of the more specific work activity statements.

#### **Task 4: Finalize Basic Set of Interests**

The last workshop was conducted with Navy SMEs to finalize the list of basic vocational interests and associated general activities. The workshop was held in the Washington, DC metropolitan area, and a total of 12 SMEs participated in the workshop. All SMEs were part of the Business Process Reengineering (BPR) Work Group, familiar with the project and its objectives, and knowledgeable about the various enlisted ratings to be represented in the interest inventory that is to be developed. The day before the workshop, the SMEs had been briefed about the project and provided an overview of the workshop.

The workshop lasted one-half day and all workshop activities were completed as a large group. The general purpose of this final workshop was to reach consensus on the basic interests to be included in the final list and the most prominent general activities to describe each vocational interest. The SMEs were provided the basic interests and general activities identified from the previous workshop for review and feedback. HumRRO project staff facilitated a large group discussion of each vocational interest and the general activities that described it. The SMEs were instructed to recommend changes, if necessary, to each vocational interest and its associated general activities. These changes included additions, deletions, and rewording of the vocational interests as well as the general activities. The group discussed and reached consensus on all recommended revisions, resulting in a total of 34 basic interests.



## Task 5: Develop Navy-Specific Vocational Interest Model

The final list of basic interests and associated general activity descriptions were slightly modified by HumRRO project staff and incorporated into the Navy-Specific Vocational Interest Model. The modifications involved renaming some of the basic interests, adding 3 basic interests, and shredding 1 into 2 interests, resulting in a total of 36 Basic Interests (see Appendix F). The three additional basic interests were Applied Mathematics, Aviation Interests, and Maritime Interests. Aviation and Maritime Interests were generated in an unstructured discussion with Enlisted Community Managers and Technical Administrators, who felt that the fairly broad interests were critical because they were widely popular interests of enlisted personnel. The project researchers added Applied Mathematics because many ratings require application of numerical skills. Vehicle Mechanics was split into Vehicle Mechanics and Vehicle Maintenance to distinguish between mechanical and non-mechanical work.

The model will serve as the foundation for developing a valid, psychometrically sound inventory to assess applicant vocational interests specific to the Navy and the enlisted ratings. When developed, composites from this inventory will be included in the current classification system. The inventory is expected to improve the accuracy and effectiveness of assignments by serving as a valid predictor of criteria relevant to classification (e.g., satisfaction, retention).

Appendix G contains a graphic depiction of the relationship of global to basic interests (global interests were previously described). It also includes general work activity descriptions of the basic interests, which define their content. The inventory development process will use the work activity statements generated in the present study, additional work activities gleaned from earlier military interest inventories, and additional statements developed by the project researchers as the basis for writing items. The items will reflect the general activity descriptions. The number of items that represent each basic interest will be proportional to its importance. Importance will be partially determined by the work activity importance ratings obtained in this study, the number of activities associated with a particular basic interest, input from Navy SMEs, and research staff judgments based on item writing guidelines and expertise.

The Navy-Specific Vocational Interest Model will also be used to develop a method of measuring job characteristics that are congruent with the individual difference items in the inventory. The method will be used with hierarchical linear modeling (HLM) to create rating or job family-specific interest composites. It will also be employed to develop composites for new or restructured ratings based on SME input, instead of a validation strategy. The job characteristics method and instrument will be developed in parallel with the interest inventory. Navy rating characteristics data will be collected from experienced SMEs.



## **Appendix B: List of Navy Ratings**



## Navy Enlisted Ratings<sup>7</sup>

1. Aviation Boatswain's Mate (AB)
2. Aviation Machinist's Mate (AD)
3. Aviation Electrician's Mate (AE)
4. Aerographer's Mate (AG)
5. Aviation Structural Mechanic (AM)
6. Aviation Structural Mechanic Safety Equipment (AME)
7. Aviation Ordnanceman (AO)
8. Aviation Support Equipment Technician (AS)
9. Aviation Electronics Technician (AT)
10. Aviation Maintenance Administrationman (AZ)
11. Culinary Specialist (CS)
12. Cryptologic Technician Interpretive (CTI)
13. Cryptologic Technician Networks (CTN)
14. Cryptologic Technician Collection (CTR)
15. Cryptologic Technician Technical (CTT)
16. Damage Controlman (DC)
17. Electrician's Mate (EM)
18. Engineman (EN)
19. Gunner's Mate (GM)
20. Gas Turbine Systems Technician (Electrical) (GSE)
21. Gas Turbine Systems Technician (Mechanical) (GSM)
22. Hospital Corpsman (HM)
23. Hull Maintenance Technician (HT)
24. Information Technology (IT)
25. Interior Communications Electrician (IC)
26. Intelligence Specialist (IS)
27. Machinist's Mate (MM)
28. Mineman (MN)
29. Machinery Repairman (MR)
30. Operations Specialist (OS)
31. Postal Clerk (PC)
32. Personnel Specialist (PS)
33. Aircrew Survival Equipmentman (PR)
34. Quartermaster (QM)
35. Ship's Serviceman (SH)
36. Storekeeper (SK)
37. Sonar Technician, Surface (STG)
38. Torpedoman's Mate (TM)

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<sup>7</sup> List of ratings current as of December 2006.

**5–6 Year Program:**

- 39. Air Traffic Controller (AC)
- 40. Builder (BU)
- 41. Construction Electrician (CE)
- 42. Construction Mechanic (CM)
- 43. Engineering Aid (EA)
- 44. Equipment Operator (EO)
- 45. Mass Communications Specialist (MC)
- 46. Steelworker (SW)
- 47. Utilitiesman (UT)

**Advanced Electronics Field:**

- 48. Aviation Electronics Technician (AT)
- 49. Cryptologic Technician Maintenance (CTM)
- 50. Electronics Technician (ET)
- 51. Fire Controlman (FC)
- 52. Sonar Technician, Surface (STG)
- 53. Sonar Technician, Submarine (STS)

**Advanced Technical Field:**

- 54. Engineman (EN)
- 55. Gas Turbine Systems Technician (Electrical) (GSE)
- 56. Gas Turbine Systems Technician (Mechanical) (GSM)
- 57. Hospital Corpsman (HC)
- 58. Hull Maintenance Technician (HT)
- 59. Interior Communications Electrician (IC)
- 60. Machinist's Mate (MM)

**Nuclear Field:**

- 61. Electrician's Mate (EM-NF)
- 62. Electronics Technician (ET-NF)
- 63. Machinist's Mate (MM-NF)

**Subfarer Programs:**

- 64. Seaman Subfarer (SS)

**Appendix C:  
Materials Used to Obtain Importance and Relative Time  
Spent Judgments**





# Development of JOIN: Jobs and Occupational Interests in the Navy<sup>8</sup> Workshop #1

## Agenda

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### Wednesday, October 6:

- |               |   |
|---------------|---|
| 8:00 - 8:15   | Introduction <ul style="list-style-type: none"><li>➤ Project Overview</li></ul>   |
| 8:15 – 8:30   | Workshop Objectives <ul style="list-style-type: none"><li>➤ Guidelines</li><li>➤ Discussion</li></ul>   |
| 8:30 – 10:00  | Complete Exercise <ul style="list-style-type: none"><li>➤ Review and Revise Rating Activity Statements</li><li>➤ Provide Importance and Relative Time Spent Information about Rating Activity Statements</li><li>➤ Review and Revise Rating Context Information</li><li>➤ Review and Revise Rating Prestige Information</li></ul> |
| 10:00 – 10:15 | Break   |
| 10:15 – 11:15 | Complete Exercise <ul style="list-style-type: none"><li>➤ Review and Revise Rating Activity Statements</li><li>➤ Provide Importance and Relative Time Spent Information about Rating Activity Statements</li><li>➤ Review and Revise Rating Context Information</li><li>➤ Review and Revise Rating Prestige Information</li></ul> |
| 11:15 – 12:00 | Discussion and Critique of Initial Occupational Interests and Work Environments   |

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<sup>8</sup> This name was changed in 2006 to Job Opportunities in the Navy (JOIN).

# Development of JOIN: Jobs and Occupational Interests in the Navy Workshop #1

## Agenda

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### Wednesday, October 6:

- |             |   |
|-------------|---|
| 1:00 - 1:15 | Introduction <ul style="list-style-type: none"><li>➤ Project Overview</li></ul>   |
| 1:15 – 1:30 | Workshop Objectives <ul style="list-style-type: none"><li>➤ Guidelines</li><li>➤ Discussion</li></ul>   |
| 1:30 – 3:00 | Complete Exercise <ul style="list-style-type: none"><li>➤ Review and Revise Rating Activity Statements</li><li>➤ Provide Importance and Relative Time Spent Information about Rating Activity Statements</li><li>➤ Review and Revise Rating Context Information</li><li>➤ Review and Revise Rating Prestige Information</li></ul> |
| 3:00 – 3:15 | Break   |
| 3:15 – 4:15 | Complete Exercise <ul style="list-style-type: none"><li>➤ Review and Revise Rating Activity Statements</li><li>➤ Provide Importance and Relative Time Spent Information about Rating Activity Statements</li><li>➤ Review and Revise Rating Context Information</li><li>➤ Review and Revise Rating Prestige Information</li></ul> |
| 4:15 – 5:00 | Discussion and Critique of Initial Occupational Interests and Work Environments   |

# Development of JOIN: Jobs and Occupational Interests in the Navy Workshop #1

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**Please answer the following background questions:**

1. What is your current position?

Enlisted Community Manager

Technical Advisor

Classifier

Detailer

2. Please list the Navy ratings/jobs for which you currently manage or oversee.

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## Development of JOIN: Jobs and Occupational Interests in the Navy Instructions for Workshop #1

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### **Step 1: Identify Ratings to Provide Information**

Review each rating in the packet you have been provided and set aside those ratings for which you are not familiar or feel you do not know enough about to provide us information.

### **Step 2: Review, Revise, and Provide Information**

For the ratings that remain in the packet, with which you are familiar and can provide information, please complete the following tasks:

#### ***Activity Statements:***

1. Add and/or delete activity statements. Review the activities listed. Then, for any activities that are inappropriate, draw a line through them. Next, add additional activities that are unique and relevant to that rating.
2. Modify activity statements. Some of the work described in the activity statements is not easily interpreted, especially to a potential/new recruit. Please modify the activity statements using words familiar to applicants or new recruits, as needed, to better reflect the work being done.
3. Rate each activity statement. First, rate how important each activity (the existing ones and the ones you add) is to the rating/job. Second, rate how often each activity (the existing ones and the ones you add) is performed relative to the other activities performed for that rating/job. Use the scales below to make your judgments:

#### **Importance (I):** How important is this activity to the rating/job?

- 1 = Unimportant compared to the other activities
- 2 = Minimally important compared to the other activities
- 3 = Important compared to the other activities
- 4 = Very Important compared to the other activities
- 5 = Extremely important compared to the other activities

**Relative Time Spent (RTS): How much time does a person in this rating/job spend on the activity relative to the other activities?**

**1 = Much less**

**2 = Less**

**3 = As much as the others**

**4 = More**

**5 = Much More**

Use the two lines along the right side of each worksheet to record your judgments.

***Context Information:***

**Review the context information presented for each rating. Add any information that you feel is appropriate to more fully describe the environment in which activities associated with this rating are performed.**

***Training Requirements Information:***

Review the training requirements information presented for each rating. Add any related types of information you believe would provide an idea of how much preparation is needed for the rating.

***Confidence in Information Provided:***

Using the scale at the bottom of each rating worksheet, tell us how confident you feel about the information you provided.

## SAMPLE RATING WORKSHEET

### Personnel Specialist Clerk (PS)

#### Activities

(I)      (RTS)

- |   |       |       |
|---|-------|-------|
| • Use computers to compute pay and prepare payroll information.       | _____ | _____ |
| • Use computers to pay travel monies.                                 | _____ | _____ |
| • Prepare financial reports.  | _____ | _____ |
| • Serve as cashier to pay government funds.                           | _____ | _____ |
| • Keep files and accounting records for payments of government funds. | _____ | _____ |

#### Additions:

\_\_\_\_\_    \_\_\_\_\_  
\_\_\_\_\_    \_\_\_\_\_  
\_\_\_\_\_    \_\_\_\_\_

#### Context

They work in offices, both aboard ship and at shore bases. The work is mental and supervised by the auditor.

#### Additions:

#### Training Requirements

- Training Time: 7 weeks
- 4-year program

#### Additions:

How confident are you with the information you provided about this rating?

- \_\_\_ Not at all confident
- \_\_\_ Somewhat confident
- \_\_\_ Extremely confident

## **Appendix D: Description of Project Database**





## Description of Project Database

A database, consisting of three EXCEL spreadsheets, was created to maintain judgments and other information provided by the SMEs. The core information in the database was provided by documents used by Navy Classifiers to place new recruits into jobs. The first spreadsheet includes the activity statements associated with each relevant rating, along with SME judgments about importance and relative time spent performing each activity. The second spreadsheet contains information about training requirements associated with each rating. The third spreadsheet contains information about the environmental conditions under which the various activities are performed. The variables included in each spreadsheet are listed below.

### Spreadsheet 1 (Importance/RTS Information):

- ◆ Count (sequential count of the number of activity statements across ratings)
- ◆ Symbol (rating acronym used by the Navy)
- ◆ Rating (identifies if the activity statement is “old” (an original statement) or “new” (a statement added by a SME))
- ◆ Activity Statement
- ◆ Participants (a series of columns, one for each of 26 SMEs; job/position title in parentheses)
- Importance (judgments about the importance of the activities using a 5-point scale)
  - 1(TA)
  - 2(ECM)
  - 3(TA)
  - 4(TA)
  - 5(ECM)
  - 6(TA)
  - 7(TA/ECM)
  - 8(ECM)
  - 9(ECM)
  - 10(TA)
  - 11(TA)
  - 12(ECM)
  - 13(ECM)
  - 14(ECM)
  - 15(TA)
  - 16(ECM)
  - 17(TA)
  - 18(TA)
  - 19(ECM)
  - 20(TA)

- 21(ECM)
  - 22(TA)
  - 23(TA)
  - 24(TA)
  - 25(TA)
  - 26(TA)
  - Means (average RTS rating across SMEs)
  - STD (standard deviation)
  - N (number of SMEs who provided a rating)
- RTS (judgments relative time spent performing each activity using a 5-point scale)
- 1(TA)
  - 2(ECM)
  - 3(TA)
  - 4(TA)
  - 5(ECM)
  - 6(TA)
  - 7(TA/ECM)
  - 8(ECM)
  - 9(ECM)
  - 10(TA)
  - 11(TA)
  - 12(ECM)
  - 13(ECM)
  - 14(ECM)
  - 15(TA)
  - 16(ECM)
  - 17(TA)
  - 18(TA)
  - 19(ECM)
  - 20(TA)
  - 21(ECM)
  - 22(TA)
  - 23(TA)
  - 24(TA)
  - 25(TA)
  - 26(TA)
  - Means
  - STD
  - N

***Spreadsheet 2 (Training Time):***

- ◆ Rating Title

- ◆ Weeks

***Spreadsheet 3 (Work Environment):***

- ◆ Rating Title
- ◆ Description (of environmental conditions)
- ◆ Additions (a series of columns, one for each of 26 SMEs; job/position title in parentheses)
  - 1(TA)
  - 2(ECM)
  - 3(TA)
  - 4(TA)
  - 5(ECM)
  - 6(TA)
  - 7(TA/ECM)
  - 8(ECM)
  - 9(ECM)
  - 10(TA)
  - 11(TA)
  - 12(ECM)
  - 13(ECM)
  - 14(ECM)
  - 15(TA)
  - 16(ECM)
  - 17(TA)
  - 18(TA)
  - 19(ECM)
  - 20(TA)
  - 21(ECM)
  - 22(TA)
  - 23(TA)
  - 24(TA)
  - 25(TA)
  - 26(TA)



**Appendix E:  
List of Critical Activities**



## Critical Activities

1. Operate, maintain, and repair aircraft launching and recovery equipment.
2. Direct air traffic by means of radio, radar, and flashing light signals.
3. Test, install, and maintain a wide range of aircraft instruments and electrical equipment, including generators, motors and lighting systems.
4. Order, receive and issue spare parts, clothing, and general supplies.
5. Serve as air cargo specialists loading airplanes with supply material.
6. Operate computer systems and applications that provide logistics support information for ship and aircraft supplies, maintenance, and accounting functions.
7. Manage customer service activities, help desks, and logistics information centers.
8. Maintain safety belts, shoulder harnesses, and integrated flight harnesses in aircraft.
9. Maintain the various systems in aircraft such as seat and canopy ejection, gaseous and liquid oxygen, life raft ejection, fire extinguishing, air conditioning, cabin and cockpit pressurization, ventilating and anti-G, and visual improvement.
10. Maintain landing gear system, brakes and related pneumatic systems, reservoir pressurization and emergency actuating systems, and associated pumps, valves, regulators, cylinders, lines, and fittings.
11. Maintain aircraft fuselages, wings, fixed and movable surfaces, airfoils, regular seats, wheels and tires, controls, and mechanisms.
12. Stow, assemble, and load aviation ammunition including aerial mines and torpedoes.
13. Load supplementary munitions.
14. Gasoline and diesel engine repair and tune-up.
15. Test, maintain, and repair airborne electronics equipment.
16. Test, maintain, and repair airborne electronics equipment.
17. Maintain aircraft and engine logbooks.
18. Operate concrete batch plants, portable concrete mixers and vibrators.
19. Interpret blueprints and prepare sketches for construction work.
20. Make estimates of materials and labor required.
21. Operate carpentry and cabinet-making shops.
22. Build and repair wood, masonry, and concrete structures.
23. Do interior finish work, to include installing sheetrock, paneling or ceramic tile walls, installing ceiling and floor tile, millwork, and trim.
24. Build forms for concrete construction.
25. Mix, place, and finish concrete.
26. Work with batteries, electric motors, relays, solenoids, and switches. Operate electrical generators.
27. Install electrical appliance and equipment.
28. Read blueprints and complete materials and cost estimates.
29. Install, maintain, and repair telephone and high-voltage and low-voltage electrical power distribution networks, both overhead and underground.

30. Splice and lay cables, erect poles, string wires, and install transformers and distribution panels.
31. Install, maintain, and repair interior wiring for lighting and electrical equipment.
32. Diagnose and troubleshoot equipment failures.
33. Work with hoisting and jacking equipment, power tools, measuring instruments, gauges, and meters.
34. Adjust and repair ignition, fuel, electrical, hydraulic and steering systems.
35. Lubricate equipment.
36. Repair and maintain diesel and gasoline engines.
37. Translate, interpret, and transcribe foreign language communications data.
38. Provide technical support to deployed units (air, surface, subsurface) in support of national and fleet requirements.
39. Perform advanced technical analysis of complex radar signals/systems.
40. Conduct routine inspections of portable DC equipment and compartment inspections.
41. Operate and maintain installed fire fighting systems.
42. Operate and maintain customized teller machines.
43. Assist dental officers in treating patients.
44. Conduct concrete, soil, and asphalt tests.
45. Prepare hydrographic, topographic, and triangulation drawings and maps.
46. Distribute and maintain construction project drawings.
47. Conduct quality control inspections for all types of construction projects.
48. Perform computer aided drafting and other graphic presentations.
49. Design grading and drainage systems.
50. Compute the volume of bulk materials (concrete, bituminous mixtures and earthwork) from drawings and specifications.
51. Conduct location surveys for roads, airfields, pipelines, ditches, buildings, drainage structures, and waterfront construction.
52. Prepare architectural, mechanical, electrical, and topographical drawings and sketches.
53. Operate and maintain various types of precision surveying and laboratory test instruments and equipment.
54. Lay out all types of construction work.
55. Run the ship's electrical safety program that prevents equipment malfunctions and reduces chance of personal injury to sailors.
56. Perform duties as machinery plant operators and supervisors.
57. Operate and service refrigeration plants and air conditioning systems.
58. Align fuel, water, and air piping systems and control operation of diesel engines used for ship propulsion, to propel small craft, and to generate electrical power.
59. Clean, lubricate, adjust, test and perform other preventive maintenance on diesel engines, reduction gears, air compressors, hydraulic or pneumatic clutches, steering engines, and controllable pitch propeller systems.
60. Organize automotive and construction equipment pools.
61. Operate a wide variety of heavy-duty, self-propelled construction equipment for such projects as building construction, roadway construction and repair, pier construction, grading, and excavation.



62. Perform minor maintenance on this equipment to ensure safe, efficient operation.
63. Maintain construction project plan and monitor progress.
64. Conduct asphalt batch plant operations.
65. Provide intelligence information to key decision makers.
66. Plot intercepted signals to determine effective defensive maneuvers in case of attack.
67. Provide intelligence information to key decision makers.
68. Maintain and repair inter-sited computer network devices.
69. Serve as engineering propulsion and electrical power plant operators and supervisors.
70. Work with blueprints, schematics, and charts.
71. Maintain alarm, indicating, and warning systems.
72. Operate standard test equipment.
73. Serve as propulsion and electric power plant operators and supervisors.
74. Test lubricating oil and distillate fuels for contamination, neutralization, and precipitation.
75. Maintain and repair gas turbine engines and auxiliary equipment.
76. Light-off and shut down engines and check for proper performance.
77. Maintain and repair gas turbine engines and auxiliary equipment.
78. Operate standard test equipment.
79. Operate pumps, turning gear, air compressors, oil purification system, low-pressure air dehydrators, engineering control systems.
80. Test lubricating oil and distillate fuels for contamination, neutralization, and precipitation.
81. Perform preventive maintenance on ship's fuel system and air system.
82. Light-off and shut down engines and check for proper performance.
83. Assist in the prevention and treatment of disease and injuries.
84. Care of the sick and injured.
85. Training and administrative support for medical reserve programs.
86. Run ashore medical department (Reserve Centers).
87. Conduct advanced welding procedures.
88. Operate and maintain propulsion and auxiliary control consoles.
89. Maintain and repair shipboard navigation equipment.
90. Perform preventive and corrective maintenance on state-of-the-art electronic and electromechanical equipment and systems, requiring the knowledge and accurate use of complex test equipment, hand tools, and technical publications.
91. Test equipment using voltmeters, ammeters, meggers, and ohmmeters.
92. Align systems for transfer of oil, water, hydraulics, and pressurized air.
93. Repair or replace valves, litters, pumps, compressors, and hydraulic or pneumatic control devices.
94. Perform preventive and corrective maintenance on hydraulic and pneumatic systems and components associated with launching systems.
95. Check weapons storage, security and alarm systems.
96. Serve as team members performing inspections and final closeout checks on weapons.
97. Maintain torpedoes, tomahawk missiles, and their launching systems.

98. Test and replace portable cable, self-contained relays, lamps, and fuses.
99. Manufacture and store oxygen.
100. Maintain equipment work logs and torpedo record books.
101. Operate, troubleshoot, and repair ship's refrigeration systems using specialized equipment after receiving Environmental Protection Agency (EPA) certification.
102. Clean, adjust, test, and perform preventive maintenance on submarines' emergency diesel engines, mast and antenna hoists, hatches, and watertight doors.
103. Remove airborne waste products such as carbon dioxide, carbon monoxide and hydrocarbons.
104. Remove and install as well as secure and reinstall weapons components from containers.
105. Locate and identify components and assemblies of electronic equipment using technical maintenance publications.
106. Quality assurance specialists.
107. Operate and maintain metal forming machines.
108. Work from sketches and specifications to produce replacement parts.
109. Operate machine shop equipment, such as lathes, drill presses, shapers, bench grinders, milling machines, boring mills, and power hacksaws.
110. Prepare menus and order the quantities and types of food items to prepare the food.
111. Store and inventory food in appropriate places onboard submarines.
112. Prepare and serve culinary items underway and in port.
113. Prepare menus and order the quantities and types of food items to prepare the food.
114. Maintain ballistic missiles and their launching systems.
115. Conduct alignment checks on navigational radar reporters.
116. Electronically detect and track ships, aircraft, and missiles.
117. Process and dispatch mail.
118. Perform a variety of counter operations similar to those performed in United States Postal Service offices, such as selling stamps, handling money orders, preparing claims, tracers, and inquiries.
119. Maintain libraries of technical training manuals.
120. Inspect, maintain, and repack parachutes, flight clothing, and other types of survival equipment.
121. Use and maintain navigational equipment.
122. Plot accurate ship positions and courses for safe ship navigation.
123. Take radar bearings and ranges.
124. Obtain and record data for ship's log.
125. Work with nautical charts and records.
126. Operate and interpret electronic navigational devices.
127. Radiomen assigned to submarines are also responsible for repair of the equipment they operate.
128. Make sure applicable security measures are observed.
129. Operate radio transmitters and receivers.

130. Operate and coordinate communications systems including automated networks, satellite data links, and the full spectrum of voice and teletype circuits.
131. Provide physical security for chaplains during field exercises and in combat environments.
132. Perform administrative, clerical, and secretarial duties.
133. Support chaplains of all faiths and religious activities of the command.
134. Maintain liaison with religious and community agencies.
135. Maintain records, ecclesiastical documents, and references of various faith groups.
136. Assist in preparation of devotional and religious educational materials, and audio-visual displays.
137. Determine, develop, manage, and maintain the administrative and logistical support requirements of religious programs aboard ships, shore stations, hospitals, Marine Corps units, and other sea service commands.
138. Supervise chaplain's office personnel.
139. Maintain and update message center files and operating logs.
140. Operate and coordinate communications systems including automated networks, satellite data links and the full spectrum of voice, teletype, and data circuits.
141. Voyage planning for submarine navigation.
142. Operate, repair, align, and calibrate a broad spectrum of electronic equipment for use in submarine navigation and communications systems including computers, electronic intercept systems, navigation systems, radio transmitting and receiving systems, cryptographic systems, satellite data link systems, general purpose test equipment, and closed circuit television systems.
143. Transmit, receive, and log electronic messages.
144. Operate and maintain Ethernet and fiber optic technology.
145. Analyze performance of electronic equipment including the repair and/or replacement of defective parts.
146. Maintain and repair electro-mechanical and electro-optical equipment.
147. Supervise the operation and maintenance of the most sophisticated navigation system in the world.
148. Operate ship's fathometers, marking and logging water readings.
149. Analyze performance of electronic equipment including the repair and/or replacement of defective parts.
150. Launching submarine weapons (torpedoes and missiles) and monitoring their performance.
151. Maintain and repair electro-mechanical and electro-optical equipment, including the performance of sensitivity, selectivity, and power measurements for electronic equipment.
152. Repair electrical/electronic cables and connectors.
153. Perform organizational and intermediate level maintenance on submarine weapon control systems including their related computer and Local Area Network (LAN) systems, launchers, and associated test equipment.
154. Computer tracking and prosecution of external surfaced and submerged contacts.
155. Operate and maintain Ethernet and fiber optic technology.

156. Operate, repair, align, and calibrate a broad spectrum of electronic equipment for use in submarine combat systems including computers, Local Area Networks, radar and sonar tracking systems, and general purpose test equipment.
157. Local Area Network (LAN) management (operation and repair) of the submarine's computer network system.
158. Work with circuit diagrams and blueprints including the tracing of logic flow diagrams.
159. Operate, repair, align, and calibrate a broad spectrum of electronic equipment for use in submarine sonar systems including computers, acoustic intercept systems, sonar transmitting and receiving systems, and general purpose test equipment.
160. Recognize equipment malfunctions during sensor operations.
161. Perform target motion analysis to determine course, speed, and closest point of approach.
162. Identify sounds produced by surface ships, torpedoes, submarines, evasion devices, sonar transmissions, marine life, and natural phenomena.
163. Provide acoustic data for weapons delivery.
164. Computer tracking and prosecution of external surfaced and submerged contacts.
165. Maintain logs and records associated with sonar.
166. Operate auxiliary equipment such as fathometers, underwater communications, and under-ice/obstacle avoidance sonars.
167. Analyze performance of electronic equipment including the repair and/or replacement of defective parts.
168. Repair electrical/electronic cables and connectors.
169. Work with circuit diagrams and blueprints including the tracing of logic flow diagrams.
170. Compile and submit acoustics intelligence packages.
171. Operate sonar sensors for detection, classification, and tracking of surface and submerged on sonar operations.
172. Interpret acoustic conditions to determine best sonar conditions for detection and counter-detection.
173. Order, store, and inventory all ship's store items and vending machine items.
174. Operate dry cleaning and laundry equipment.
175. Collect cash receipts and run the vending machine operation.
176. Maintain financial reports on computer.
177. Keep financial and inventory records for all parts in shore-based warehouses and ship storerooms.
178. Order, receive, and issue spare parts, clothing and general supplies.
179. Manage customer service activities, help desks, and logistics information centers.
180. Manage customer service activities, help desks, and logistics information centers.
181. Order, receive, and issue spare parts, clothing and general supplies.
182. Keep financial and inventory records for all parts in submarine support shore-based warehouses and submarine storerooms.
183. Prepare financial documents to pay for submarine services completed by contractor.
184. Stand security watches while in port.
185. Operate the control systems that guide the submarine (carried out under orders and supervision).

186. Assist members of the weapons department in torpedo tube and fire control equipment maintenance and preservation.
187. Become members of the torpedo battle stations team.
188. Repair sonar systems, underwater fire control systems, and associated anti-submarine warfare ancillary equipments.
189. Identify electronic components on schematics and trace major signal flow using standard electronic component color coding system.
190. Perform preventive and corrective maintenance on sonar equipment and underwater fire control systems including use of general purpose test equipment.
191. Fabricate, erect, install, fit, weld, and bolt structural steel shapes, plates and the built-up sections used in heavy construction.
192. Lay out, fabricate, and install sheet metal assemblies and systems.
193. Erect steel bridges, tanks, buildings, towers, and pre-engineered structures.
194. Perform welding and metal cutting operations.
195. Install, operate, and repair heating, piping, ventilation, and air conditioning systems.
196. Identify and carry out procedures to limit or minimize the adverse effects of environmental pollution.
197. Install and maintain compressed air, fuel storage, water distribution.
198. Install and maintain systems acquiring plumbing and pipe-fitting skills.
199. Read blueprints and complete material and cost estimates.
200. Prepare and type correspondence and reports.
201. Prepare and type correspondence and reports.
202. Write official letters and correspondence.
203. Perform office personnel administration.
204. Order, store, check, and issue naval aircraft and aeronautical equipment and accessories, including flight clothing.
205. Maintain enlisted service records, Navy Directive System, Navy filing system.
206. Provide emergency medical treatment and instruct sailors and marines in first aid, self-aid, and personal hygiene procedures.
207. By interpreting radar display, distinguish between ships, aircraft, missiles and natural objects or disturbances.
208. Function in the tactical nerve center (i.e., combat information center [CIC]) of their ship as part of the command and control team.
209. Control air traffic at airfields and on aircraft carriers.
210. Maintain and service aircraft and their systems (fuel, oil induction, cooling, compression, combustion, turbine, and exhaust).
211. Perform helicopter maintenance, install and maintain engines and accessories, drives and gear boxes.
212. Prepare up-to-date weather maps and oceanographic data.
213. Conduct weather/oceanographic briefings.
214. Issue aircraft work orders and inspection.
215. Prepare dental materials and medications for dental officers.
216. Repair, adjust, and calibrate sophisticated electronic search and precision radar tracking systems, weapons computer systems, target designation systems, and electrohydraulic servo-mechanisms.
217. Operate the kitchen and dining facilities.

218. Operate kitchen and dining facilities.
219. Operate cryptographic equipment.
220. Maintain message center files and operating logs; update communications publications.
221. Transmit, receive, route, and log radio messages.
222. Cut hair in the barbershop.
223. Operate computer systems to account for all government supplies.
224. Operating computer systems that provide logistic support information for submarine supplies and accounting functions.
225. Organize and maintain files.
226. Maintain records and official publications.
227. Operate personal computers, word processing, duplicating, audio-recording, and other office machines.
228. Use computers to compute pay and prepare payroll information.
229. Keep files and accounting records for payments of government funds.
230. Remove and install oxygen system valves, gages, converters, and regulators.
231. Inspect, remove, install, and rig ejection seats, shoulder harnesses, lap belts, and face-curtain mechanisms.
232. Inspect, remove and replace components of hydraulic systems.
233. Service pressure accumulators, emergency air bottles, oleo struts, reservoirs, and master brake cylinders.
234. Maintain hydraulic systems including main and auxiliary power systems and unit actuating subsystems.
235. Remove, install, and rig flight control surfaces.
236. Assemble, test, and maintain air-launched guided missiles.
237. Maintain files and technical documents associated with prescribed duties.
238. Inspect, maintain, test, and repair electric power equipment.
239. Maintain operating efficiency of distribution panels, switches, switchboards, controllers, voltage regulators, current transformers, and voltage transformers.
240. Evaluate intercepted electromagnetic radiations to determine whether they originate from surface, airborne, missile, or natural atmospheric sources.
241. Evaluate intercepted electromagnetic radiations to determine whether they originate from surface, airborne, missile, or natural atmospheric sources.
242. Operate and maintain magazine flooding and sprinkling systems.
243. Operate and maintain guided missile launching systems, rocket launchers, gun mounts, and other ordnance systems and equipment.
244. Repair, maintain, test, and calibrate ordnance equipment.
245. Work with blueprints, schematics, and charts.
246. Operate electric plant control equipment.
247. Operate pumps, turning gear, air compressors, oil purification system, low-pressure air dehydrators, engineering control systems.
248. Perform preventive maintenance on ship's fuel system and air system.
249. Install, maintain, and repair valves, piping, plumbing system fittings and fixtures, and marine sanitation systems.
250. Operate marine sanitation systems.
251. Organize and operate Navy post offices, ashore or afloat.
252. Direct and facilitate routing and transportation of mail.

253. Make sure various types of mail have been properly marked and sorted.
254. Maintain security for registered, certified, and other special classes of mail.
255. Inspect and test safety equipment.
256. Equip and pack life rafts.
257. Compute high and low tides and current velocity.
258. Steer ships.
259. Make weather and celestial observations.
260. Encode and decode message.
261. Stand visual communications watch for the command on the signal bridge or bridge.
262. Render honors and ceremonies to dignitaries (foreign and domestic) and to passing vessels.
263. Send and receive formation maneuvering and tactical signals.
264. Send and receive messages by flashing light, semaphore, signal flags, and radiotelephone.
265. Operate personal computers, word processing, duplicating, audio recording, and other office machines.
266. Prepare and type records of procurement, stock control, and issuance of equipment.
267. Act as shipboard firefighters.
268. Instruct shipboard personnel in the operation, maintenance, and repair of damage control equipment.
269. Identify ships and aircraft as friendly or enemy; determine their distances, bearings, and altitudes.
270. Fuel and defuel planes.
271. Perform aircraft engine repair.
272. Check and repair navigational and search equipment.
273. Make comprehensive circuit repairs of component parts, assemblies, and subassemblies.
274. Conduct quality control inspections for all types of construction projects.
275. Operate sophisticated, state-of-the-art, radio-receiving, direction-finding, and related computer equipment.
276. Operate radio-receiving, direction-finding, teletype, recording, and related computer equipment.
277. Operate radio-receiving, direction-finding, teletype, recording, and related computer equipment.
278. Maintain files and technical documents associated with prescribed duties.
279. Make appointment schedules, prepare and maintain dental records, and maintain dental storerooms.
280. Operate and maintain desalinization plants used to make fresh water from seawater.
281. Repair or replace valves, pumps, compressors, heat exchangers, and control devices used with diesel engines and gas turbines.
282. Make entries into and analyze machinery operating records and reports.
283. Test interior communications and gyrocompass equipment.
284. Maintain and repair shipboard navigation equipment.
285. Maintain plotters and dead reckoning equipment.

286. Repair offset presses, duplicators, film process cameras, and bindery equipment.
287. Operate process camera and darkroom equipment.
288. Control operation of turbogenerators used to produce electrical power.
289. Operate and maintain desalinization plants (distilling plants) to make fresh water from seawater.
290. Align piping systems for oil, water, and steam, and control the operation of steam turbines used for ship propulsion.
291. Solve complex electronic problems when tests fail.
292. Functioning in the minesweeping tactical nerve center of their ships as part of the command and control team.
293. Perform maintenance on and assemble mines.
294. Work with basic mechanic hand tools, electrical meters, and electronic test equipment.
295. Work with precision measuring instruments such as micrometers, depth gauges, verniers, calipers, gauge blocks, protractors, and dial indicators.
296. Engrave metal and other materials.
297. Keep records for food supplies and financial budgets.
298. Store and inventory food in appropriate places onboard ship or ashore facilities.
299. Keep records for food supplies and financial budgets.
300. Write official letters and reports.
301. Advise on capabilities, limitations, and condition of radio equipment.
302. Keep inventory records using microcomputers.
303. Handle cash and operate the ship's store.
304. Fill out logs.
305. Become members of the weapons handling team.
306. Identify sounds produced by surface ships, torpedoes, submarines, evasion devices, sonar transmissions, marine life, and natural phenomena.
307. Operate sonar sensors for detection and classification of contacts.
308. Conduct quality control inspections for all types of construction projects.
309. Check weapons storage, cooling, ventilating, sprinkler, alarm, and dewatering systems.
310. Ensure the safe stowage of weapons.
311. Serve as team member performing inspections and final closeout checks on weapons.
312. Maintain and repair torpedo launching systems and system components (surface ships' torpedo tubes, and shipping, loading and unloading systems).
313. Conduct quality control inspections for all types of construction projects.
314. Organize and maintain files.
315. Perform office personnel administration.
316. Maintain records and official publications.
317. Receive office visitors and handle telephone communications.
318. Serve as office managers.
319. Use computers to pay travel monies.
320. Prepare financial reports.
321. Perform preventive and corrective maintenance on state-of-the-art electronic and electromechanical equipment and systems, requiring the knowledge and accurate use of complex test equipment, hand tools, and technical publications.



322. Operate, repair, and maintain firefighting equipment, damage control equipment, and chemical, biological, and radiological defense equipment.
323. Perform medical administrative, supply, and accounting procedures; maintain treatment records and reports.
324. Plot tracks for air and surface targets.
325. Assist in evaluating tactical situations.
326. Provide data for safe navigation and a variety of tactical changes.
327. Perform electrical troubleshooting operations.
328. Replace gaskets, packing, and wipers in hydraulic components.
329. Paint.
330. Service aircraft guns and accessories.
331. Service releasing and launching devices.
332. Electric generator and motor repair.
333. Making and installing belts and hoses.
334. Automotive electric maintenance and repair work.
335. Test wiring, lamps resistors, synchros, and potentiometers.
336. Make comprehensive circuit repairs of component parts, assemblies, and subassemblies.
337. Check and repair navigational and search equipment.
338. Measure electrical voltage, current, and resistance quantities.
339. Work with classified material.
340. Provide communications support to the fleet (air, surface, shore).
341. Provide technical support to deployed units (air, surface, subsurface) in support of national and fleet requirements.
342. Repair, adjust, and calibrate a broad spectrum of electronics equipment in general use in the surface and subsurface Navy, including communications equipment, radar search systems, navigation systems, and others.
343. Analyze performance of electronics equipment, isolate and repair or replace defective parts.
344. Operate electronic detection and deception systems.
345. Service hydraulic and pneumatic systems.
346. Maintain alarm, indicating, and warning systems.
347. Light-off and shut down engines and check for proper performance.
348. Locate circuit failures and replace parts.
349. Operate electric plant control equipment.
350. Replace and adjust operating tolerance of contacts, microswitches, relay switches, pressure switches, and temperature switches.
351. Maintain sea water service system, waste drain system, oil purification system, manually operated valves.
352. Requisition and control postal supplies and equipment.
353. Manufacture various types of fabric work and webbing assemblies used in survival equipment.
354. Make water-depth soundings.
355. Maintain signal bridge and associated communications equipment.
356. Perform ground or deck duties involved in the takeoff or landing of aircraft.
357. Place and secure aircraft.
358. Operate and make adjustments to ground-controlled approach systems.

359. Operate carrier-controlled approach systems.
360. Collect, record, and analyze weather and oceanographic information.
361. Issue weather warnings.
362. Keep charts that show trends in aircraft systems reliability.
363. Perform data analysis.
364. Perform a wide range of clerical and administrative duties related to aircraft maintenance, such as preparing reports and correspondence, filing and typing.
365. Operate and service refrigeration plants and air conditioning systems.
366. Clean, lubricate, adjust, test, and perform other preventive maintenance on diesel engines, reduction gears, air compressors, hydraulic or pneumatic clutches, steering engines, and controllable pitch propeller systems.
367. Repair or replace valves, pumps, compressors, heat exchangers, and control devices used with diesel engines and gas turbines.
368. Align fuel, water and air piping systems and control operation of diesel engines used for ship propulsion, to propel small craft, and to generate electrical power.
369. Maintain plotters and dead reckoning equipment.
370. Prepare inventory reports.
371. Perform emergency repair to piping fittings and fixtures.
372. Supervise shipboard and field environmental sanitation and preventive medicine programs.
373. Supervise air, water, food, and habitability standards.
373. Work as part of search-and-rescue team.
374. Provide counseling.
375. Operate electronic detection and deception systems.
376. Receive office visitors and handle telephone communications.
377. Perform crash firefighting duties and maintain fire and rescue equipment.
378. Assist in dispatching and exercising coordinated control of all flights.
379. Interpret data shown on radar screen and plot aircraft positions.
380. Provide aircraft with information regarding air traffic, navigation, and weather conditions, including local ceiling, visibility, and clouds.
381. Perform propeller repairs.
382. Use computers to maintain records and track aircraft maintenance actions.
383. Perform corrosion control.
384. Read electrical system diagrams.
385. Maintain automatic flight control systems.
386. Maintain inertial navigation systems.
387. Use computers to maintain records and track aircraft maintenance actions.
388. Perform corrosion control.
389. Use computers, typewriters, adding, calculating, and duplicating machines to accomplish the above.
390. Maintain financial logs and records.
391. Responsible for the ordering of updated publications/directives.
392. Use computers to maintain records and track aircraft maintenance actions.
393. Perform corrosion control.
394. Perform daily, preflight, postflight, and other periodic aircraft inspections.
395. Perform daily, preflight, postflight, and other periodic aircraft inspections.
396. Adjust brakes and replace linings and pucks.

397. Use computers to maintain records and track aircraft maintenance actions.
398. Perform corrosion control.
400. Fabricate and assemble metal parts and make minor repairs to aircraft skin.
401. Install rivets and metal fasteners.
402. Build up wheels and tires.
403. Use computers to maintain records and track aircraft maintenance actions.
404. Inspect, maintain, and repair aircraft mechanical and electrical armament/ordnance systems.
405. Use computers to maintain records and track aircraft maintenance actions.
406. Perform corrosion control.
407. Brake repair and servicing.
408. Perform corrosion control.
409. Use computers to maintain records and track aircraft maintenance actions.
410. Perform corrosion control.
411. Maintain and repair operational computers and computer test sets.
412. Analyze detection devices.
413. Test wiring, lamps, resistors, synchros, and potentiometers.
414. Use computers to maintain records and track aircraft maintenance actions.
415. Perform corrosion control.
416. Analyze detection devices.
417. Trace malfunctions in electrical parts and systems.
418. Schedule aircraft inspections.
419. Use computers to maintain records and track aircraft maintenance actions.
420. Maintain up-to-date publications, technical directives.
421. Prepare correspondence.
422. Build wharves, bridges, and other heavy timber structures.
423. Maintain and monitor environmental protection program.
424. Conduct quality control inspections for all types of construction projects.
425. Install, repair, and maintain street lighting, fire alarm, public address, inter-office, and telephone switchboard systems.
426. Prepare, maintain, monitor equipment repair history files.
427. Maintain and repair chassis, frames, and bodies.
428. Maintain and repair tires, batteries, brakes, and valves. Perform shop management functions such as maintenance scheduling and spare parts inventory control.
429. Prepare repair parts orders and maintain inventory.
430. Assigned to deploy special warfare teams.
431. Produce and maintain classified publications.
432. Deploy with Navy special warfare units (SEALS).
433. Operate sophisticated state-of-the art electronic radio receivers, magnetic recording devices; computer terminals, and associated peripherals in the communications signals environment.
434. Understand and explore computer and communication network vulnerabilities.
435. Maintain permanent fleet cryptologic and carry-on direct support systems required in special land, sea, and sub-surface operations.
436. Perform research and development of hardware and software for cryptologic operations, computer network defense, and computer network systems.

437. Assigned to deploy special warfare teams.
438. Analyze configuration and monitor the operation of computer telecommunications and networking systems.
439. Perform information security and computer network defense functions for secure networks and communications systems.
440. Control and operate computerized communications systems and associated equipment including: mainframe systems, satellite systems, terminals, patch panels, modems, multiplexes and communications security devices.
441. Assigned to deploy special warfare teams.
442. Assigned to deploy special warfare teams.
443. Perform analysis of intelligence derived information.
444. Operate sophisticated, state-of-the-art, strategic and tactical signals collection and analysis systems.
445. Routinely work with highly classified and technical material.
446. Apply technical knowledge in the formation of technical reports and briefs for operation departments at shore facilities and for commanders of unit afloat.
447. Routinely work with highly classified and technical material.
448. Apply analytical knowledge in the formation of technical reports and briefs for operations departments at shore facilities and for commanders of units afloat.
449. Operate sophisticated, state-of-the-art, electronic radio receivers, magnetic recording devices, computer terminals, and associated peripherals and teletype printers.
450. Assigned to deploy special warfare teams.
451. Maintain life saving and rescue devices.
452. Perform emergency repairs to decks, structures, and hulls by patching, caulking and shoring.
453. Document maintenance performed by the crew.
454. Compute travel allowances.
455. Use computers to make administrative changes to pay records.
456. Assist in oral prophylaxis treatment.
457. Assist in oral surgery.
458. Instruct patients in oral hygiene.
459. Expose and process dental X-ray films.
460. Prepare equipment, manpower, and material estimates from drawings and specifications.
461. Prepare network analyses, charts, and graphs.
462. Design concrete, soil, and asphalt products for construction projects.
463. Maintain operating efficiency of electric motors.
464. Install and maintain storage batteries.
465. Maintain electrical components on shipboard elevators.
466. Repair electrical equipment and appliances.
467. Use electronic monitoring devices to analyze machinery records and reports.
468. Operate and maintain desalinization plants used to make fresh water from sea water.
469. Make entries into and analyze machinery operating records and reports.
470. Serve as a member of a crane crew to rig cable assemblies and change attachments for various lifting and pile-driving operations.

471. Conduct quality control inspections for all types of construction projects.
472. Repair and replace electronic equipment associated with computers and LANs (switches, routers, etc.)
473. Maintain and repair electromechanical equipment associated with electronics systems.
474. Assist trained maintenance technicians in the repair and periodic maintenance of EW systems.
475. Create and maintain computer databases used to quickly identify radar emissions.
476. Routinely work and update with highly technical manuals.
477. Track surface and airborne targets.
478. Create and maintain computer databases used to quickly identify radar emissions.
479. Maintain electronic warfare equipment.
480. Make mechanical, electrical, and electronic casualty analyses.
481. Make sensitivity, selectivity, and accuracy measurements for electronic computers and equipment.
482. Work with circuit schematics and blueprints in repair of component electronic parts.
483. Make mechanical, electrical, and electronic casualty analysis using technical publications, circuit diagrams, and blueprints.
484. Test protective circuitry.
485. Repair electrical and electronic cables, wiring, and connectors.
486. Operate standard test equipment.
487. Measure current, voltage, and resistance.
488. Test for shorts, grounds, and continuity.
489. Use electronic monitoring devices to record and log equipment performance.
490. Perform administrative procedures related to gas turbine propulsion system operation and maintenance.
491. Maintain and repair gas turbine engines and auxiliary equipment.
492. Replace and adjust operating tolerance of contacts, microswitches, relay switches, pressure switches, and temperature switches.
493. Measure current, voltage, and resistance.
494. Test for shorts, grounds, and continuity.
495. Repair electrical and electronic cables, wiring, and connectors.
496. Light-off and shut down engines and check for proper performance.
497. Operate electric plant control equipment.
498. Perform administrative procedures related to gas turbine propulsion system operation and maintenance.
499. Locate circuit failure and replace parts.
500. Test protective circuitry.
501. Replace and adjust operating tolerance of contacts, microswitches, relay switches, pressure switches, and temperature switches.
502. Maintain and repair gas turbine engines and auxiliary equipment.
503. Work with blueprints, schematics, and charts.
504. Perform administrative procedures related to gas turbine propulsion system operation and maintenance.

505. Operate standard test equipment.
506. Replace and adjust operating tolerance of contacts, microswitches, relay switches, pressure switches, and temperature switches.
507. Perform administrative procedures related to gas turbine propulsions system operation and maintenance.
508. Work with blueprints, schematics, and charts.
509. Maintain seawater service system, waste drain system, oil purification system, manually operated valves.
510. Operate electric plant control equipment.
511. Transport the sick and injured.
512. Examine and test welds.
513. Assist in all damage control parties.
514. Operate metal forming and bending machines.
515. Quality assurance program specialists.
516. Repair decks, structures, and hulls by welding, brazing, riveting and caulking.
517. Interpret diagrams and blueprints for shipboard piping systems.
518. Install, maintain, and repair valves, piping, plumbing systems fittings and fixtures and marine sanitation systems.
519. Operate marine sanitation systems.
520. Quality assurance program specialists.
521. Examine and test welds.
522. Fabricate with light and heavy gauge metal such as aluminum, stainless steel, sheet copper and brass, sheet and corrugated iron.
523. Non-destructive testing of metal operator.
524. Blueprint reading.
525. Maintain shipboard alarm systems.
526. Repair interior communications equipment.
527. Prepare and interpret blueprints, wiring diagrams and sketches.
528. Install telephone and other communications circuits, boxes, switchboards and bell buzzer systems.
529. Maintain integrated launch/recovery television systems.
530. Maintain and repair helicopter landing and lighting systems.
531. Maintain and repair interior communications systems.
532. Maintain and operate TV systems.
533. Install telephones and other communications circuits, boxes, switchboards and bell buzzer systems.
534. Prepare and interpret blueprints, wiring diagrams, and sketches.
535. Provide input to and receive data from computerized intelligence systems ashore and afloat.
536. Provide targeting support materials.
537. Create target folders.
538. Write intelligence reports.
539. Maintain public affairs files and research files.
540. Gather facts, write, edit, and proofread news for radio and TV outlets.
541. Manage ship or station newspapers.
542. Manage radio and television stations.
543. Write and produce radio and television programs.

544. Prepare spot announcements for radio and TV.
545. Take news photographs.
546. Set type, make plates, and produce and strip negatives for printing.
547. Design layouts.
548. Perform graphic reproduction with lithographic and letterpress equipment.
549. Clean, adjust, test, and perform other preventive maintenance on a ship's main engines, turbogenerators, and other auxiliary machinery including steering engines and elevators.
550. Maintain refrigeration plants and air conditioning systems.
551. Control operation of turbogenerators used to produce electrical power.
552. Operate and maintain desalinization plants (distilling plants) to make fresh water from seawater.
553. Maintain refrigeration plants and air conditioning systems.
554. Align oil, water, and steam piping systems and control the operation of steam turbines used for ship propulsion.
555. Clean, adjust, test, and perform other preventive maintenance on ship's main engines, turbogenerator and other auxiliary machinery including steering engines and elevators.
556. Repair or replace valves, pumps, heat exchangers, compressors, steam turbines and hydraulic or pneumatic control devices.
557. Operate sonar systems for detection and classification of contacts.
558. Repair auxiliary machinery.
559. Perform electroplating and flame spraying operations.
560. Maintain related launching systems including high-pressure air and hydraulic systems.
561. Test and repair ballistic missile guidance systems.
562. Maintain and operate ballistic missiles fire control systems and equipment for Trident submarines.
563. Maintain postal equipment.
564. Repair cameras and photographic processing equipment.
565. Operate laboratory and darkroom equipment for film processing.
566. Prepare audio-visual presentations.
567. Operate and maintain various types of cameras for a variety of uses.
568. Take news photographs.
569. Perform duties as an underwater photographer.
570. Develop motion picture film and microfilm prints.
571. Use, adjust, maintain, and repair sewing machines.
572. Use computers to maintain records and track aircraft maintenance actions.
573. Operate and maintain teletypewriter equipment.
574. Train command religious program volunteers on logistics and instruction methods.
575. Publicize the command's religious activities.
576. Perform bookkeeping and accounting functions related to Religious Offerings Fund transactions.
577. Repair electrical/electronic cables and connectors.
578. Work with circuit diagrams and blueprints including the tracing of logic flow diagrams.

579. Compute high and low tides, current velocities, sunrise and sunset and other celestial phenomenon.
580. Serve as air cargo specialists loading airplanes with supply material.
581. Prepare inventory reports.
582. Prerate workhousing areas, material handling, and storage equipment.
583. Operate material handling and storage equipment.
584. Operate office equipment: typewriters, adding, calculating, and imaging equipment.
585. Serve as the primary communication link between ships operating together in a hostile environment.
586. Perform maintenance on the submarine's line handling equipment, topside safety gear and emergency escape equipment.
587. Provide support to the supply department including loading supplies.
588. Operate underwater fire control systems for firing of torpedoes and anti-submarine rockets.
589. Recognize major equipment malfunctions during sensor operations.
590. Recognize major equipment malfunctions during sensor operations.
591. Identify electronic components on schematics and trace major signal flow.
592. Operate sonar sensors for detection and classification of contacts; operate underwater fire control systems.
593. Identify sounds produced by surface ships, torpedoes, submarines, evasion devices, sonar transmissions, marine life, and natural phenomena.
594. Use technical maintenance publications, drawings, schematics, and diagrams to locate and identify components and assemblies of electronic equipment, weapons, and torpedo launchers.
595. Test and replace electronic systems.
596. Install and remove torpedo exploder mechanism.
597. Perform preventive and corrective maintenance on hydraulic and pneumatic systems and components associated with launching systems.
598. Install and remove weapons components from containers; secure and reinstall weapons components in containers.
599. Operate and maintain water and wastewater systems and treatment plants.
600. Serve as office managers.
601. Perform administrative functions for legal proceedings.
602. Maintain enlisted/officer service records.
603. Serve as cashier to pay government funds.
604. Keep fiscal records of the facility.
605. Plot intercepted signals to determine effective defensive maneuvers in case of attack.
606. Administer tests.
607. Interview personnel.
608. Perform administrative functions for legal proceedings.
609. Administer medications including injections.
610. Administer immunization programs.
611. Conduct preliminary physical examinations.
612. Operate radiotelephones.
613. Communicate with aircraft by voice radio.



614. Prepare balloon-carried instruments for flight; evaluate and analyze data received.
615. Use, test, calibrate, and perform minor and preventive maintenance on meteorological instruments including satellite receivers.
616. Organize and operate libraries of technical publications, reports, and related maintenance data.
617. Analyze and report highly technical information of strategic and tactical importance to fleet commanders and national intelligence agencies.
618. Render emergency dental first aid.
619. Align weapons control systems.
620. Maintain and operate TV systems.
621. Assemble and analyze multisource operational intelligence.
622. Prepare and present intelligence briefings.
623. Prepare materials for photographic reconnaissance missions.
624. Analyze intelligence information.
625. Perform crash firefighting duties and maintain fire and rescue equipment.
626. Perform daily, preflight, postflight, and other periodic aircraft inspections.
627. Perform dye penetrant inspections.
628. Supervise operation of aviation ordnance shops, armories, and stowage facilities.
629. Body work, minor welding, painting.
630. Air conditioning service and repair.
631. Trace malfunctions in electrical parts and systems.
632. Interpret electrical sketches, diagrams, and blueprints.
633. Connect electric power machinery and electric power equipment.
634. Repair, maintain, test, and calibrate microprocessing equipment.
635. Train and supervise crews in the use of all types of ordnance equipment, from large caliber guns and missile systems to small arms.
636. Store and use explosives.
637. Perform preventive maintenance on digital data equipment and control and monitor circuits.
638. Use hoisting and lifting devices and maintain special tools.
639. Fabricate with light and heavy gauge metal such as aluminum, stainless steel, sheet copper and brass, steel, sheet and corrugated iron.
640. Inspect Navy post offices, take steps to maintain or improve efficiency.
641. Prepare postal records and reports.
642. Operate typewriters, adding machines, weighing machines (scales) and various other machines and meters.
643. Administrative tests.
644. Organize and set up files for correspondence, reports, stock cards and other accounting systems.
645. Assist in equipment installation and modifications.
646. Process messages using teletypewriter equipment or computer terminals observing all applicable security measures.
647. Operate field lighting systems and traffic control lights.
648. Evaluate jet engine performance, using jet test cells for fixed turbojet engines.
649. Handle and service aircraft on the ground and on ships.

650. Keep records and reports on electronic performance and inventory of electronic equipment needed for maintenance and repair.
651. Measure electrical voltage, current, and resistance quantities.
652. Work within the combat systems casualty control organization to ensure readiness of installed equipment.
653. Maintain and repair interior communications systems.
654. Plot imagery data using maps and charts.
655. Operate printing presses.
656. Bind and collate printing products.
657. Make entries in and analyze machinery operating records and reports.
658. Repair or replace valves, pumps, heat exchangers, compressors, steam turbines, and hydraulic or pneumatic control devices.
659. Perform electrical and electronic checks and test of circuitry and components.
660. Operate various types of mine handling equipment such as forklifts, cranes, and heavy transport trucks.
661. Estimate time and material needed for machine shop work and the repairing of auxiliary machinery.
662. Draw sketches and prepare specifications for replacement parts.
663. Operate and manage living quarters aboard ship and at shore-based motel/hotel-type quarters.
664. Serve as personal food service specialists on admirals' staffs and for the commanding officer aboard ship or at shore bases.
665. Use computers, typewriters, adding machines, calculators, copiers.
666. Work in non-nuclear divisions of the submarine.
667. Identify the characteristics, functions and effects of controlled jamming and evasive devices on sonar operations.
668. Prepare and interpret sonar messages.
669. Test and replace portable cable, self-contained relays (plug-in), lamps, and fuses.
670. Inventory torpedo components, tools, and test equipment. Requisition replacements.
671. Test equipment using voltmeters, ammeters, meggers, and ohmmeters.
672. Maintain equipment worklogs and torpedo record books.
673. Keep official publications up-to-date.
674. Conduct consecutive transactions.

**Appendix F:  
Final Vocational Interests and Associated General Activity  
Descriptions**



## Basic Interests and General Activity Descriptions

Basic Interests	General Activity Descriptions
Air Operations	<ul style="list-style-type: none"><li>➤ Controlling/tracking air traffic patterns</li><li>➤ Coordinating take-offs and landings</li><li>➤ Placing and securing aircraft</li><li>➤ Performing flight deck operations</li><li>➤ Managing tower operations</li><li>➤ Aircraft types</li><li>➤ History of flight</li><li>➤ Aircraft capabilities (speed, range, ceiling, armaments)</li><li>➤ Flight principles</li></ul>
Air Systems Installation/Repair	<ul style="list-style-type: none"><li>➤ Air conditioning systems</li><li>➤ Heating systems</li><li>➤ Refrigeration</li><li>➤ Compressors</li><li>➤ Ductwork</li><li>➤ Boilers</li><li>➤ Furnaces</li></ul>
Applied Mathematics	<ul style="list-style-type: none"><li>➤ Numerical operations (computing)</li><li>➤ Algebra</li><li>➤ Geometry</li><li>➤ Calculating velocities, speed, distances, and other measurements</li></ul>
Aviation Interests	<ul style="list-style-type: none"><li>➤ Aircraft types</li><li>➤ History of flight</li><li>➤ Aircraft capabilities (speed, range, ceiling, armaments)</li><li>➤ Flight principles</li></ul>
Communications Installation/Repair	<ul style="list-style-type: none"><li>➤ Repairing communications systems</li><li>➤ Troubleshooting communications systems</li><li>➤ Analyzing communications networks</li><li>➤ Communications security</li><li>➤ Repairing internal and external communications systems (optical, microwave, land, satellite)</li></ul>
Communications Operations	<ul style="list-style-type: none"><li>➤ Voice and electronic communications</li><li>➤ Communication systems</li><li>➤ Telephones</li><li>➤ Satellite communications</li><li>➤ Audio data processing</li></ul>

<b>Basic Interests (Cont.)</b>	<b>General Activity Descriptions (Cont.)</b>
Computers/Information Technology	<ul style="list-style-type: none"> <li>➤ Programming computers</li> <li>➤ Processing and analyzing data</li> <li>➤ Operating computers</li> <li>➤ Internet uses</li> <li>➤ Local area networks</li> <li>➤ Computer languages</li> <li>➤ Building and repairing computer hardware</li> <li>➤ Viruses</li> </ul>
Construction Crafts	<ul style="list-style-type: none"> <li>➤ Building design</li> <li>➤ Masonry</li> <li>➤ Carpentry</li> <li>➤ Survey and land management</li> </ul>
Drafting/Design	<ul style="list-style-type: none"> <li>➤ Architecture</li> <li>➤ Graphic arts</li> <li>➤ Drafting</li> <li>➤ Computer aided design</li> <li>➤ Making charts and diagrams</li> </ul>
Electrical Systems Installation/ Repair	<ul style="list-style-type: none"> <li>➤ Electrical circuits</li> <li>➤ Wiring diagrams</li> <li>➤ Electrical schematics</li> <li>➤ Electrical principles</li> <li>➤ Electrical component functions</li> <li>➤ Electrical test equipment and automated diagnostics/repair</li> </ul>
Electronic Systems	<ul style="list-style-type: none"> <li>➤ Electronics principles</li> <li>➤ Electronics schematics</li> <li>➤ Solid state physics</li> <li>➤ Troubleshooting electronics systems</li> <li>➤ Repair procedures</li> </ul>
Emergency Services	<ul style="list-style-type: none"> <li>➤ Fire fighting/prevention</li> <li>➤ Fire science</li> <li>➤ Water safety/lifeguarding</li> <li>➤ Search and rescue</li> </ul>
Engine Mechanics	<ul style="list-style-type: none"> <li>➤ Operating and maintaining engines</li> <li>➤ Troubleshooting engines</li> <li>➤ Engine repair procedures</li> <li>➤ Propulsion systems</li> </ul>
Environmental Management	<ul style="list-style-type: none"> <li>➤ Hazardous waste</li> <li>➤ Accelerants and retardants</li> <li>➤ Soil conservation</li> <li>➤ Waste management</li> </ul>

<b>Basic Interests (Cont.)</b>	<b>General Activity Descriptions (Cont.)</b>
Financial Management	<ul style="list-style-type: none"> <li>➤ Managing financial plans and budgets</li> <li>➤ Maintaining records/bookkeeping</li> <li>➤ Accounts payable and receivable</li> <li>➤ Estimating costs</li> <li>➤ Preparing and maintaining spreadsheets</li> </ul>
Hotel/Restaurant Management	<ul style="list-style-type: none"> <li>➤ Planning menus</li> <li>➤ Preparing and processing food</li> <li>➤ Catering</li> <li>➤ Hotel management</li> <li>➤ Laundry</li> <li>➤ Barbering/beautician</li> <li>➤ Food displays</li> <li>➤ Dietetics</li> <li>➤ Nutrition</li> </ul>
Hydraulic Systems Maintenance	<ul style="list-style-type: none"> <li>➤ Hydraulic systems (design, troubleshooting, repair)</li> <li>➤ Pneumatics</li> </ul>
Information Analysis	<ul style="list-style-type: none"> <li>➤ Analyzing and interpreting photo images</li> <li>➤ Threat assessment</li> <li>➤ Human and electronic intelligence systems</li> <li>➤ Information sources</li> <li>➤ Foreign languages</li> </ul>
Law Enforcement	<ul style="list-style-type: none"> <li>➤ Security systems and procedures</li> <li>➤ Criminology</li> <li>➤ Self defense/physical security</li> <li>➤ Dog handling</li> <li>➤ Special operations and weapons</li> <li>➤ Operations security</li> </ul>
Maritime Interests	<ul style="list-style-type: none"> <li>➤ Naval history</li> <li>➤ Ships</li> <li>➤ Sailing/boating</li> <li>➤ Propulsion systems</li> <li>➤ Surface and submarine vessels</li> <li>➤ Nautical terminology</li> <li>➤ Warfare at sea</li> </ul>

<b>Basic Interests (Cont.)</b>	<b>General Activity Descriptions (Cont.)</b>
Media Arts	<ul style="list-style-type: none"> <li>➤ Radio</li> <li>➤ Television</li> <li>➤ Videography</li> <li>➤ Film production</li> <li>➤ Music</li> <li>➤ Art</li> <li>➤ Creative writing</li> <li>➤ Photography</li> <li>➤ Newspaper layouts</li> <li>➤ Publication and distribution of written materials</li> <li>➤ Special events planning</li> </ul>
Medical and Dental Services	<ul style="list-style-type: none"> <li>➤ Caring for patients</li> <li>➤ Paramedic procedures</li> <li>➤ Maintaining medical records</li> <li>➤ Drug and physical therapy</li> <li>➤ Preventing/controlling disease</li> <li>➤ Emergency care</li> <li>➤ Dental hygiene</li> </ul>
Medical and Dental Technical	<ul style="list-style-type: none"> <li>➤ Medical tests</li> <li>➤ Developing X-rays</li> </ul>
Metal Crafts	<ul style="list-style-type: none"> <li>➤ Welding</li> <li>➤ Metal fabrication</li> <li>➤ Vehicle body repair</li> <li>➤ Corrosion control</li> </ul>
Natural and Physical Science	<ul style="list-style-type: none"> <li>➤ Chemical properties and reactions</li> <li>➤ Natural sciences</li> <li>➤ Physical sciences</li> <li>➤ Particle physics</li> <li>➤ Nuclear reactions</li> </ul>
Navigation Theory/Practice	<ul style="list-style-type: none"> <li>➤ Plotting courses</li> <li>➤ Geographic coordinates</li> <li>➤ Global positioning</li> <li>➤ Astrophysics</li> <li>➤ Celestial navigation</li> <li>➤ Calculating speed/distance</li> <li>➤ Plotting intercepts</li> </ul>

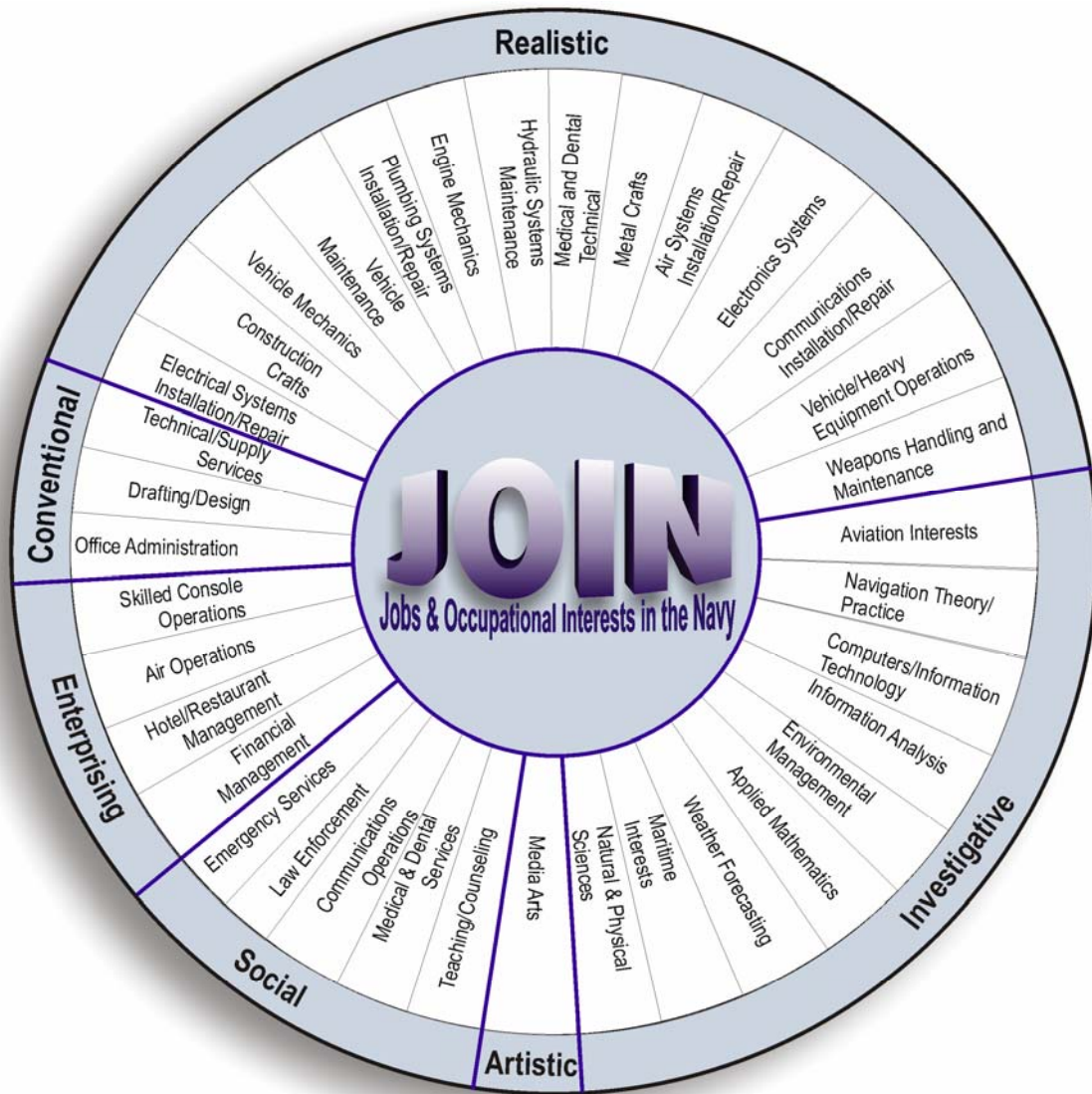


<b>Basic Interests (Cont.)</b>	<b>General Activity Descriptions (Cont.)</b>
Office Administration	<ul style="list-style-type: none"> <li>➤ Typing</li> <li>➤ Filing</li> <li>➤ Entering data</li> <li>➤ Maintaining automated files</li> <li>➤ Receiving and controlling sensitive materials</li> <li>➤ Writing</li> <li>➤ Human relations</li> <li>➤ Distributing mail</li> </ul>
Plumbing Systems Installation Repair	<ul style="list-style-type: none"> <li>➤ Fitting pipes</li> <li>➤ Water and gas distribution systems</li> <li>➤ Connections/tests</li> <li>➤ Troubleshooting and repairing plumbing systems</li> </ul>
Skilled Console Operations	<ul style="list-style-type: none"> <li>➤ Signal detection</li> <li>➤ Sonar/radar systems</li> <li>➤ Tracking targets</li> <li>➤ Identifying friend and foe</li> <li>➤ Visual/aural vigilance</li> </ul>
Teaching/Counseling	<ul style="list-style-type: none"> <li>➤ Training/instruction</li> <li>➤ Teaching</li> <li>➤ Counseling</li> <li>➤ Public speaking</li> <li>➤ Planning lessons</li> </ul>
Technical/Supply Services	<ul style="list-style-type: none"> <li>➤ Receiving, storing, and issuing supplies</li> <li>➤ Requisitioning services and supplies</li> <li>➤ Managing inventories</li> <li>➤ Customer relations</li> </ul>
Vehicle Maintenance	<ul style="list-style-type: none"> <li>➤ Maintaining vehicles (except engine)</li> <li>➤ Muffler, brakes, accessories</li> </ul>
Vehicle Mechanics	<ul style="list-style-type: none"> <li>➤ Vehicle cooling system</li> <li>➤ Vehicle electrical system</li> <li>➤ Fuel systems</li> <li>➤ Brakes</li> <li>➤ Steering</li> <li>➤ Vehicle exhaust system</li> <li>➤ Vehicle air conditioning system</li> <li>➤ Vehicle heating system</li> </ul>
Vehicle/Heavy Equipment Operations	<ul style="list-style-type: none"> <li>➤ Driving trucks</li> <li>➤ Operating front loaders</li> <li>➤ Operating graders</li> <li>➤ Operating track vehicles</li> <li>➤ Operating aircraft tow tractors</li> </ul>

<b>Basic Interests (Cont.)</b>	<b>General Activity Descriptions (Cont.)</b>
Weapons Handling and Maintenance	<ul style="list-style-type: none"><li>➤ Handling and maintaining explosives, armaments, weapons, missiles, mines, and torpedoes</li><li>➤ Maintaining firearms</li><li>➤ Aviation ordinance</li><li>➤ Ordnance disposal</li><li>➤ Pyrotechnics</li></ul>
Weather Forecasting	<ul style="list-style-type: none"><li>➤ Tracking storms</li><li>➤ Atmospheric</li><li>➤ Satellite observation systems</li><li>➤ Celestial observations</li><li>➤ Oceanography</li></ul>

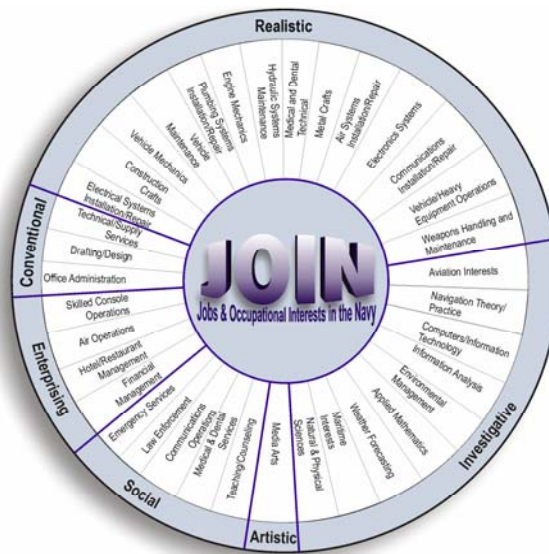
**Appendix G:  
Results of Navy SME Workshops:  
Graphic Depiction of the Relationships of Global  
Interests, Navy-Specific Basic Interests and General  
Activity Descriptions**





9

<sup>9</sup> Changed in 2006 to Job Opportunities in the Navy (JOIN).



Basic Interests

General Activity Descriptions

Realistic

Electrical Systems  
Installation/Repair

Electrical circuits  
Wiring diagrams  
Electrical schematics  
Electrical principles  
Electrical component functions  
Electrical test equipment and automated diagnostics/repair

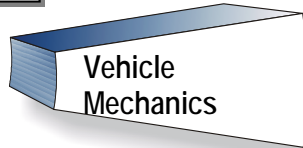
Construction Crafts

Building design  
Masonry  
Carpentry  
Survey and land management

Basic Interests

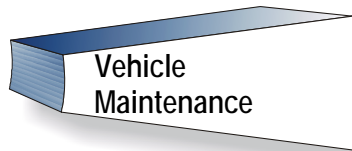
General Activity Descriptions

**Realistic**  
(Continued)



Vehicle cooling system  
Vehicle electrical system  
Fuel systems  
Brakes  
Steering  
Vehicle exhaust system  
Vehicle air conditioning system  
Vehicle heating system

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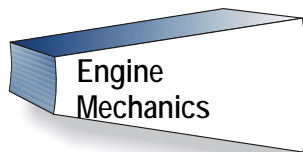
Maintaining vehicles (except engine)  
Muffler, brakes, accessories

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Fitting pipes  
Water and gas distribution systems  
Connections/tests  
Troubleshooting and repairing plumbing systems

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Operating and maintaining engines  
Troubleshooting engines  
Engine repair procedures  
Propulsion systems

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Hydraulic systems (design, troubleshooting, repair)  
Pneumatics

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Basic Interests

General Activity Descriptions

**Realistic**  
(Continued)



Medical tests  
Developing X-rays

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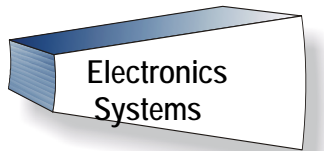
Welding  
Metal fabrication  
Vehicle body repair  
Corrosion control

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Air conditioning systems  
Heating systems  
Refrigeration  
Compressors  
Ductwork  
Boilers  
Furnaces

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Electronics principles  
Electronics schematics  
Solid state physics  
Troubleshooting electronics systems  
Repair procedures

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Repairing communications systems  
Troubleshooting communications systems  
Analyzing communications networks  
Communications security  
Repairing internal and external communications systems (optical, microwave, land, satellite)

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Basic Interests

General Activity Descriptions

**Realistic**

(Continued)



Driving trucks  
Operating front loaders  
Operating graders  
Operating track vehicles  
Operating aircraft tow tractors

---



Handling and maintaining explosives, armaments, weapons, missiles, mines, and torpedoes  
Maintaining firearms  
Aviation ordnance  
Ordnance disposal  
Pyrotechnics

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**Investigative**



Aircraft types  
History of flight  
Aircraft capabilities (speed, range, ceiling, armaments)  
Flight principles

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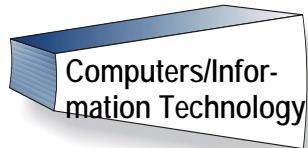


Plotting courses  
Geographic coordinates  
Global positioning  
Astrophysics  
Celestial navigation  
Calculating speed/distance  
Plotting intercepts

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**Investigative**

(continued)

**Computers/Information Technology**

Programming computers  
Processing and analyzing data  
Operating computers  
Internet uses  
Local area networks  
Computer languages  
Building and repairing computer hardware  
Viruses

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**Information Analysis**

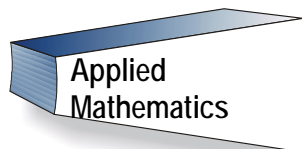
Analyzing and interpreting photo images  
Threat assessment  
Human and electronic intelligence systems  
Information sources  
Foreign languages

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**Environmental Management**

Hazardous waste  
Accelerants and retardants  
Soil conservation  
Waste management

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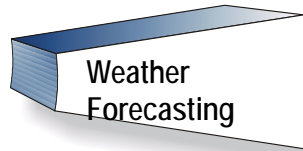
**Applied Mathematics**

Numerical operations (computing)  
Algebra  
Geometry  
Calculating velocities, speed, distances, and other measurements

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**Investigative**

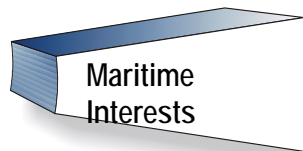
(continued)



Weather  
Forecasting

Tracking storms  
Atmospherics  
Satellite observation systems  
Celestial observations  
Oceanography

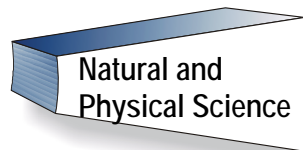
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Maritime  
Interests

Naval history  
Ships  
Sailing/boating  
Propulsion systems  
Surface and submarine vessels  
Nautical terminology  
Warfare at sea

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Natural and  
Physical Science

Chemical properties and reactions  
Natural sciences  
Physical sciences  
Particle physics  
Nuclear reactions

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Artistic



- Radio
- Television
- Videography
- Film production
- Music
- Art
- Creative writing
- Photography
- Newspaper layouts
- Publication and distribution of written materials
- Special events planning

Social



Fire fighting/prevention  
Fire science  
Water safety/lifeguarding  
Search and rescue



Security systems and procedures  
Criminology  
Self defense/physical security  
Dog handling  
Special operations and weapons  
Operations security



Voice and electronic communications  
Communication systems  
Telephones  
Satellite communications  
Audio data processing

**Social**

(Continued)

**Medical and Dental Services**

Caring for patients  
 Paramedic procedures  
 Maintaining medical records  
 Drug and physical therapy  
 Preventing/controlling disease  
 Emergency care  
 Dental hygiene

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**Teaching/  
Counseling**

Training/instruction  
 Teaching  
 Counseling  
 Public speaking  
 Planning lessons

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**Enterprising**

**Skilled Console Operations**

Signal detection  
 Sonar/radar systems  
 Tracking targets  
 Identifying friend and foe  
 Visual/aural vigilance

---

**Air Operations**

- Controlling/tracking air traffic patterns
  - Coordinating take-offs and landings
  - Placing and securing aircraft
  - Performing flight deck operations
  - Managing tower operations
  - Aircraft types
  - History of flight
  - Aircraft capabilities (speed, range, ceiling, armaments)
  - Flight principles
-

**Enterprising**

(continued)



Planning menus  
Preparing and processing food  
Catering  
Hotel management  
Laundry  
Barbering/beautician  
Food displays  
Dietetics  
Nutrition

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Managing financial plans and budgets  
Maintaining records/bookkeeping  
Accounts payable and receivable  
Estimating costs  
Preparing and maintaining spreadsheets

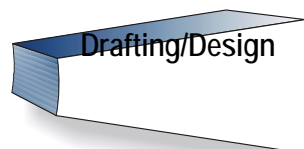
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**Conventional**



Receiving, storing, and issuing supplies  
Requisitioning services and supplies  
Managing inventories  
Customer relations

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Architecture  
Graphic arts  
Drafting  
Computer aided design  
Making charts and diagrams

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**Conventional**  
(continued)



Typing  
Filing  
Entering data  
Maintaining automated files  
Receiving and controlling sensitive  
materials  
Writing  
Human relations  
Distributing mail

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## Distribution

AIR UNIVERSITY LIBRARY  
ARMY MANAGEMENT STAFF COLLEGE LIBRARY  
ARMY RESEARCH INSTITUTE LIBRARY  
ARMY WAR COLLEGE LIBRARY  
CENTER FOR NAVAL ANALYSES LIBRARY  
DEFENSE TECHNICAL INFORMATION CENTER  
HUMAN RESOURCES DIRECTORATE TECHNICAL LIBRARY  
JOINT FORCES STAFF COLLEGE LIBRARY  
MARINE CORPS UNIVERSITY LIBRARIES  
NATIONAL DEFENSE UNIVERSITY LIBRARY  
NAVAL HEALTH RESEARCH CENTER WILKINS BIOMEDICAL LIBRARY  
NAVAL POSTGRADUATE SCHOOL DUDLEY KNOX LIBRARY  
NAVAL RESEARCH LABORATORY RUTH HOOKER RESEARCH LIBRARY  
NAVAL WAR COLLEGE LIBRARY  
NAVY PERSONNEL RESEARCH, STUDIES, AND TECHNOLOGY SPISHOCK  
LIBRARY (3)  
PENTAGON LIBRARY  
USAF ACADEMY LIBRARY  
US COAST GUARD ACADEMY LIBRARY  
US MERCHANT MARINE ACADEMY BLAND LIBRARY  
US MILITARY ACADEMY AT WEST POINT LIBRARY  
US NAVAL ACADEMY NIMITZ LIBRARY