Relationships between Personality Dimensions Assessed by the Navy Computer Adaptive Personality Scales and Supervisor Ratings of Job Performance

Donna K. Roland

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The Dissertation Committee for Donna Kristina Roland certifies that this is the approved version of the following dissertation:

RELATIONSHIPS BETWEEN PERSONALITY DIMENSIONS ASSESSED BY THE NAVY COMPUTER ADAPATIVE PERSONALITY SCALES AND SUPERVISOR RATINGS OF JOB PERFORMANCE

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RELATIONSHIPS BETWEEN PERSONALITY DIMENSIONS ASSESSED BY THE NAVY COMPUTER ADAPTIVE PERSONALITY SCALES AND SUPERVISOR RATINGS OF JOB PERFORMANCE

by

Donna Kristina Roland

A Dissertation
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Major: Experimental Psychology

The University of Memphis

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Abstract


Motowidlo, Borman, and Schmit (1997) proposed the theory of individual differences in task and contextual performance. The theory posits that task performance is predicted by cognitive ability though task habits, skills, and knowledge, whereas contextual performance is predicted by personality through contextual habits, skills, and knowledge. In this study, their theory was tested with the use of the Armed Forces Qualification Test (AFQT) as a measure of cognitive ability, the Navy Rating Protocol (NRP) as a measure of task and contextual performance, and the Navy Computer Adaptive Personality Scales (NCAPS) as a measure of personality. NRP scales were divided into contextual and task performance dimensions and personality traits were hypothesized to predict contextual performance, whereas cognitive ability was hypothesized to predict task performance. Results showed that the AFQT was significantly predictive of all contextual performance dimensions, and many of the personality dimensions did not provide incremental validity. Personality was only able to provide incremental validity beyond the AFQT for two contextual dimensions. Furthermore, the AFQT was only predictive of one of the task performance dimensions hypothesized. Because results appear to be mixed, more research will need to be conducted on Motowidlo et al.’s theory of task and contextual performance in order to provide support for the theory.
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Relationships between Personality Dimensions Assessed by the Navy Computer Adaptive Personality Scales and Supervisor Ratings of Job Performance

One of the most robust findings within industrial psychology over the last 100 years is the value of general mental ability (GMA) for predicting training and performance on the job (e.g., Hunter, 1986; Hunter & Hunter, 1984; Ree & Earles, 1991; Schmidt & Hunter, 1998; Thorndike, 1985). The overall finding of several meta-analyses is that GMA correlates about .5 after correction for criterion unreliability and range restriction with both subjective and objective measures of job performance (e.g., Hunter, 1980; Hunter & Hunter, 1988; Pearlman, Schmidt, & Hunter, 1980; Schmidt & Hunter, 1998;). A significant amount of research has also been conducted on the potential value of non-cognitive (i.e., personality) measures for adding incremental validity to measures of GMA for predicting job performance. Although the predictive validity of these measured constructs is generally not as high as that for measures of GMA, research findings in some contexts point to their predictive utility as supplements to measures of cognitive ability.

In a meta-analysis by Barrick and Mount (1991), for example, Conscientiousness showed correlations across job type with three different performance criteria: job proficiency, training proficiency, and personnel data (estimated true correlation corrected for sampling error, between-study differences in test unreliability, criterion unreliability, and range restriction $r = .13$, uncorrected mean validity $r = .08$). Salgado (1997) demonstrated the same link between Conscientiousness and job performance (mean $r = .15$). Furthermore, results also indicated a link between Emotional Stability and job performance (estimated true validity corrected for measurement error in criterion and
predictor and range restriction mean $r = .13$), though this relationship was not found in the study by Barrick and Mount (1991).

A meta-analysis by Ones, Dilchert, Viswesvaran, and Judge (2007) also concluded that Conscientiousness predicted job performance across all job types. Ones et al. even went so far as to say, “Evidence suggests that Conscientiousness is the single best, generalizable Big Five predictor of job performance” (p. 1002). These authors noted that no other personality traits appear to predict job performance consistently across occupations. Instead, different combinations of personality traits predict performance, depending upon job type. For instance, for skilled and semi-skilled jobs, Conscientiousness, Emotional Stability, and Agreeableness appear to predict best. In addition to Conscientiousness, Emotional Stability, and Agreeableness, both Openness to Experience and Neuroticism appear to predict job performance in customer service operations. Finally, for managerial positions, both Extraversion and Conscientiousness predict performance (Ones et al., 2007). These results lead to the conclusion that, because of their unique job settings in organizations such as the U.S. Navy, an investigation of the relationships between various personality traits and Sailor performance would be warranted.

*Models of the Relationship between Personality and Job Performance*

Several theories have been posited to explain the underlying relationship between personality and job performance. Campbell, McCloy, Oppler, and Sager (1993) suggested that job performance resulted from a combination of procedural knowledge (e.g., skill), declarative knowledge (e.g., facts), and motivation (e.g., effort). In this theory,
personality is recognized as an antecedent of procedural knowledge, declarative knowledge, and motivation, and thus indirectly leads to job performance.

Another model, proposed by Tett and Burnett (2003), included a trait-based interactionist approach, which holds that personality traits correlate positively with job performance if cues for trait expression are presented by the organizational setting, social situations, or job tasks. Furthermore, the extrinsic rewards presented in these situations must be relatively weak, so as not to constrain the expression of various personality traits. In this model, personality ultimately relates to job performance through work behaviors that are influenced by the organization, co-workers, job tasks, and intrinsic and extrinsic rewards.

Hogan and Shelton (1998) proposed a socioanalytic perspective, which posits that people are motivated “to get along, to get ahead, and to render their lives interpretable” (p. 132). These goals are often pursued in work settings and are the driving force behind individual differences in job performance. However, subjective measures of job performance reflect the judgment of another person regarding an individual’s job success. Basically, a person’s presentation of himself in pursuit of the goals of getting along and getting ahead and how others perceive that self-presentation greatly impact his job success. In this model, job performance is viewed in terms of “rewardingness” or “the degree to which an incumbent meets or fulfills his boss’s expectations regarding his or her performance” (p. 129).

Motowidlo, Borman, and Schmit (1997) proposed another theory regarding individual differences in contextual performance and task performance. In their model, cognitive ability accounts for differences in job performance related to task habits, skills,
and knowledge. These task performance variables directly relate to an organization’s success by carrying out technical processes or serving and maintaining technical requirements of the organization (e.g., selling merchandise in a store, teaching at a school, replenishing raw materials, and distributing final products). When these tasks are carried out, they provide opportunities for feedback used for performance appraisal.

Personality, on the other hand, accounts for differences in job performance related to contextual habits, skills, and knowledge that contribute to contextual performance. Motowidlo et al. (1997) define contextual performance as “activities that promote the viability of the social and organizational network and enhance the psychological climate in which the technical core is embedded” (p. 76). Contextual variables do not support the technical core itself. Instead, these variables relate to organizational success by contributing to the broader organizational environment in which the technical core must function (e.g., helping and cooperating with others, following organizational rules, volunteering to help complete tasks that are not formally part of the job). These behaviors are closely related to organizational citizenship behavior and prosocial organizational behavior in which behaviors are performed with the intention of promoting the welfare of the individual, group, or organization (Brief & Motowidlo, 1986; Smith, Organ, & Near, 1983). When these contextual tasks are carried out (or not carried out), they too provide feedback used for performance appraisal.

Bergman, Donovan, Drasgow, Overton, and Henning (2008) attempted to test Motowidlo et al.’s (1997) theory of individual differences in contextual and task performance. Their results provided initial support for the theory, which posits that both personality and cognitive ability predict procedural knowledge, which in turn predicts
contextual performance. In their study of employees in the financial and insurance industries, personality, experience, procedural knowledge, and cognitive ability data were collected along with supervisor ratings of job performance. Results indicated that procedural knowledge was related to contextual performance and that both cognitive ability and personality were antecedents of procedural knowledge.

In another study, Motowidlo and Scotter (1994) found that both task and contextual performance contribute independently to measures of job performance, providing further evidence for Motowidlo et al.’s (1997) theory. These authors computed a hierarchical regression adding task performance before contextual and then contextual performance before task. Results indicated that task performance explained 13% ($p < .05$) of the variance in overall performance beyond that explained by contextual performance. Furthermore, contextual performance explained 11% ($p < .05$) of the variance in overall performance beyond that explained by task performance.

The current study incorporated Motowidlo et al.’s (1997) theory of contextual and task performance because it has been supported previously in preliminary empirical studies. Furthermore, upon closer inspection many of the alternative theories actually include aspects of contextual and task performance. For instance, Hogan and Shelton’s (1998) terms of “getting along” and “getting ahead” are comparable to contextual performance and task performance, respectively (p. 132). “Getting along” implies a sense of prosocial organizational behavior in which a person contributes to others for the purpose of promoting the welfare of other individuals, a group, or the organization (p. 132). This concept relates very closely to contextual performance. Furthermore, “getting ahead” implies a sense of carrying out actions meant to support the technical core of the
organization through activities such as selling merchandise or replenishing raw materials (p. 132). Getting ahead, therefore, relates closely to the idea of task performance.

Motowidlo et al.’s (1997) theory of contextual and task performance also contains elements of Campbell et al.’s (1993) theory of procedural knowledge and skill, declarative knowledge, and motivation. Motowidlo et al. suggest that cognitive ability accounts for individual differences in job performance through variability in task habits, skills, and knowledge that lead to task performance. Task skills relate to procedural knowledge and skills, and task knowledge relates to declarative knowledge in Campbell et al.’s theory. Because Motowidlo et al.’s theory seems to encompass many aspects of the other theories and because of the preliminary empirical evidence to support the theory, it was used as the basis for this study.

**Current Study**

This study extends the literature on Motowidlo et al.’s (1997) theory of individual differences in contextual and task performance. The theory was tested by dividing the variables on a rating instrument known as the Navy Rating Protocol (NRP) into task variables and contextual variables. Then, the degree to which cognitive ability predicted task performance and personality predicted contextual performance was analyzed. Previous literature has examined Motowidlo et al.’s theory in relation to overall performance or leadership, sales, and service performance, only. The NRP contains many more dimensions (e.g., Adaptability/Flexibility, Initiative and Self-Development, Integrity/Honesty, Work Ethic, etc) that could contribute useful information regarding how personality predicts different aspects of contextual performance.
The NCAPS Personality Inventory

The possibility that a personality measure may provide incremental validity in addition to scores on a cognitive ability test known as the Armed Services Vocational Aptitude Battery (ASVAB) was the impetus behind the development of the Navy Computer Adaptive Personality Scales (NCAPS). The NCAPS was designed to provide an additional tool for classifying Navy recruits into jobs where they would be most productive and satisfied (Schneider et al., 2006). Traditionally, Navy recruits have been classified and assigned to training and career paths based on the ASVAB. The ASVAB contains nine subtests: Word Knowledge (WK), Paragraph Comprehension (PC), Arithmetic Reasoning (AR), Mathematics Knowledge (MK), General Science (GS), Auto and Shop Information (AS), Mechanical Comprehension (MC), Electronics Information (EI), and Assembling Objects (AO). The combined scores of the WK, PC, AR, and MK are often used as a general test of cognitive ability. This test is known as the Armed Forces Qualification Test (AFQT) (Roberts et al., 2000).

In spite of the ASVAB’s demonstrated validity for predicting training and performance in various military occupations, the ASVAB cut-off selection strategy for the different ratings still results in a troublesome level of false positives, especially with respect to retention and reenlistment. One possible explanation for this poor performance and recidivism has been the low job satisfaction among many sailors, which indicates a poor fit between many sailors and their jobs. Booth-Kewley, Larson, and Ryan (2000) indicated that an average of 36% of Navy sailors attrite before completing their first term (typically four years of service). Furthermore, in an analysis of causes of attrition in one job category, Arnold and Phillips (2007) revealed that 40% of those who attrited from a
Naval Aviation Training program dropped on request (DOR). These DOR attrites were mentally and physically qualified for the job but cited reasons for leaving such as “loss of interest in the flight program,” “do not enjoy flying as much as expected,” and “nervousness and anxiety generated by the flight program” (p. 8). This high rate of DOR attrition is indicative of poor job-person fit.

Furthermore, reenlistment in the Navy has been a concern as well. Historically, only 39% of sailors reenlist (Ropp, Dickason, & Blackstone, 2003). Also, job satisfaction rates within the first four years of service are low. Only 38% of sailors indicate satisfaction with their jobs, whereas 34% indicate dissatisfaction (Olmsted & Underhill, 2003). If job satisfaction could be improved by classifying sailors into jobs that have a better job-person fit, the hope is that job performance will improve and attrition rates will decrease while reenlistment rates will increase. With respect to job performance, currently there is no widespread problem with underperforming sailors; most do perform satisfactorily. However, the hope is that sailors will not only perform satisfactorily but that they will perform to the best of their individual abilities. Therefore, the NCAPS was developed to serve as a classification tool to complement the ASVAB in an effort to capture some of the non-cognitive variance associated with job performance.

**Overview of the NCAPS**

The NCAPS was designed to measure the following eight personality variables considered by Navy subject matter experts (SMEs) to represent traits important to success in the Navy: Achievement, Adaptability/Flexibility, Dutifulness/Integrity, Dependability, Self-Reliance, Social Orientation, and Stress Tolerance (Houston, Borman, Farmer, & Bearden, 2006). The NCAPS assesses these variables using the computer adaptive rating
scale (CARS) developed by Borman et al. (2001). The CARS format uses paired-comparisons of behavioral statements as opposed to traditional linear numerical scales. Furthermore, Borman et al. added an adaptive orientation to the test, using item response theory (IRT). By using both IRT and CARS, the NCAPS is able to reduce the number of items presented to each individual, decrease testing time, and improve score validities when compared with traditional testing formats (Simms & Clark, 2006; Underhill, 2006).

To explain the NCAPS further, the initial item pair presented to the recruits consisted of two levels of a single trait, one above the mid-point and the other below on a one to seven scale. After a response was chosen, the recruit’s trait level score was revised based on the specific response given using Bayes modal estimation (Stark & Drasgow, 1998). Next, the recruit was presented with a new pair of items that bracketed the trait level estimate in a way that maximized trait-level information. After the recruit chose his or her next response, the process was repeated until either the standard error fell below a certain point programmed into the computer algorithm or until the participant reached 10 item pair presentations. Thus, item pairs presented varied from person to person because of the adaptive survey format.

Several studies have reported the benefits associated with CARS. For example, Simms and Clark (2005) compared a traditional paper and pencil measure of their Schedule for Nonadaptive and Adaptive Personality to a computer adaptive version of the same measure. Results suggested that, when compared with two established measures of personality—the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) and the Revised Eysenck Personality Questionnaire (EPQ-R; Eysenck, Eysenck, & Barrett, 1985)—both the paper and pencil and the computer adaptive version of the Schedule for
Nonadaptive and Adaptive Personality measures had similar convergent and discriminant validity. Also, Simms and Clark (2005) reported a mean time savings of 38% for the computerized method even when the number of items was held constant across tests. In addition, 87% of participants preferred the computerized method, citing speed (49%) and ease of use (24%) as the main reasons for their preference.

Forbey and Ben-Porath (2007) reported similar results through a comparison of a computer adaptive version of the Minnesota Multiphasic Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) to 14 criterion measures selected to reflect the constructs and content of several MMPI-2 scales. Specifically, results suggested the computer adaptive version of the MMPI-2 had similar predictive validity scores to the paper and pencil MMPI-2. Furthermore, the computer adaptive version of the MMPI-2 reduced the number of items administered by an average of 19.4%, thereby reducing the amount of time taken to complete the computer adaptive version by approximately 17%.

Previous Evidence of the Predictive Validity of NCAPS

During the development of the NCAPS, Houston et al. (2006) compared data on supervisor ratings to both a traditional paper and pencil, non-adaptive form of NCAPS and the new, adaptive form of NCAPS. Results showed that the median correlation, corrected for criterion unreliability, between the traditional NCAPS subscales and supervisor ratings was $r = .14$, with a range of .03 for Social Orientation to .40 for Willingness to Learn. On the other hand, the median corrected correlation, corrected for criterion unreliability, between the adaptive NCAPS and supervisor ratings was $r = .24$, with a range of .07 for Self-Reliance to .48 for Achievement, thus providing evidence
that the adaptive NCAPS is superior to the traditional NCAPS with respect to predictive capability as well (Houston et al., 2006).

**Purpose of the Current Study**

The plan of this study was to extend the research on NCAPS predictive validity using a recently-developed performance criterion, the Navy Rating Prototype (NRP), which is a job performance evaluation instrument that includes measures of contextual performance. Although the current Navy evaluation format (EVALs; see below) includes some aspects of contextual performance, the NRP has expanded these contextual variables to include additional facets not previously rated by supervisors. This new format is more likely to tap into dimensions associated with job-person fit because of its primary focus on contextual variables. Furthermore, because personality has been theorized to predict contextual performance (Motowidlo et al., 1997), NCAPS should be an important predictor of the NRP ratings concerning these additional contextual performance variables.

**NRP Overview**

For its primary evaluation tool, the Navy has used an instrument known as EVALs, short for Evaluations, for Navy enlisted sailors. The various dimensions in the EVALs protocols are graded on a 5-point scale with 5.0 being the highest score and 1.0 being the lowest score. A score of 3.0 indicates average performance. Dimensions evaluated include: Professional Knowledge, Team Work, Leadership, Command or Organizational Climate/Equal Opportunity, Military Bearing/Character, Qualification for Work, Personal Job Accomplishment/Initiative, Mission Accomplishments, and Tactical Performance. Commanding officers and officers in charge complete the forms on a
detailed schedule, and sailors are promoted, given raises in pay grade, given advanced training, allowed specialization, and given responsible duty assignments based on EVALs ratings (BUPERS, 2008).

In addition to the EVALS not tapping some of the contextual dimensions theorized to be important for overall performance effectiveness, another problem has been the lack of variability in the EVALs observed throughout the years. The EVALs has a problem with reduced variance caused in part by leniency errors (R. Bearden, personal communication, November 2009). The vast majority of sailors are given superior ratings throughout the entire rating report. The NRP was developed, in part, to address this problem. Instead of the traditional 5-point scale, the NRP was designed using behaviorally-based statements scored on a 7-point scale. This 7-point scale was anchored with three general categories: Exceeds Standards (rated 6 to 7), Meets Standards (rated 3 to 5), and Somewhat Below Standards (rated 1 to 3). All dimensions were elaborated with two to three sentences explaining what behaviors defined the category.

The NRP was developed by first collecting a set of 105 generic performance behaviors from Navy supervisors. Navy senior Enlisted personnel were then asked to rate the relevance of each performance behavior to non-supervisory ratings in the Navy. These senior Enlisted personnel were also asked for recommendations on behaviors that should be added or revised in the set. After eliminating five behaviors in this manner, the 100-item set was then reduced to a smaller but representative set of categories by subject matter experts. A total of 49 sailors from the Naval Stations in San Diego, CA and Norfolk, VA were asked to sort the 100 behaviors according to their similarity in content. After sorting the behaviors, the sailors were asked to label and define each category.
Finally, a matrix consisting of correlations between pairs of performance behaviors was constructed. The correlation matrix was then analyzed using principal components analysis, which resulted in a 9-component solution. These 9 components were then labeled and defined and include: Cooperation/Working Well with Others, Task Proficiency and Productivity, Adaptability/Flexibility, Initiative and Self-Development, Knowledge and Support of Unit/Command Objectives, Problem Solving and Decision Making, Integrity/Honesty, Work Ethic, and Communicating Effectively. Definitions of each component are presented in Table 1.

Table 1

*Definitions of NRP Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task Proficiency and Productivity</strong></td>
<td>An individual who “performs work accurately and proficiently; attends well to details; effectively and efficiently uses resources to complete tasks; prioritizes tasks and completes them within deadlines; makes efficient use of time; and maintains a stable and consistent level of work” (Bearden, 2008, p. 7)</td>
</tr>
<tr>
<td><strong>Knowledge and Support of Unit/Command Objectives</strong></td>
<td>An individual who “maintains knowledge of the unit’s functions and operations, and procedures/processes important for unit and Command success; understands problems/issues from Command and larger Navy perspectives; is knowledgeable and supportive of unit/Command initiatives” (Bearden, 2008, p. 10)</td>
</tr>
<tr>
<td><strong>Problem Solving/Decision Making</strong></td>
<td>An individual who “is consistently able to identify errors and spot discrepancies; recognizes and defines problems, and analyzes potential solutions; weighs positives and negatives of a situation and decides on a course of action; and presents anticipated problems and possible solutions to appropriate chain of command” (Bearden, 2008, p. 11)</td>
</tr>
</tbody>
</table>
Table 1 (continued)

Definitions of NRP Variables Continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation/Working Well with Others</td>
<td>An individual who “interacts with others in a cooperative manner; resolves differences with others with minimal conflict; provides and accepts constructive criticism; and uses sensitivity in dealing with persons from diverse backgrounds” (Bearden, 2008, p. 6)</td>
</tr>
<tr>
<td>Adaptability/Flexibility</td>
<td>An individual who “quickly adapts and changes priorities when needed; remains calm and focused in changing or stressful situations; effectively manages multiple tasks; and effectively overcomes problems without demonstrating frustration or anxiety” (Bearden, 2008, p. 8)</td>
</tr>
<tr>
<td>Initiative and Self-Development</td>
<td>An individual who “suggests effective new approaches to improve processes/systems; takes on additional duties and responsibilities; requires very little supervision; and learns new skills valuable for self-development” (Bearden, 2008, p. 9)</td>
</tr>
<tr>
<td>Integrity/Honesty</td>
<td>An individual who “demonstrates integrity in day-to-day work behavior; adheres to rules and regulations; keeps sensitive information confidential; behaves in a professional manner at all times; maintains proper military appearance and demeanor; and understands and accepts consequences of own actions” (Bearden, 2008, p. 12)</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>An individual who “works hard including working long hours, when appropriate; keeps others informed if work cannot be completed on time or if there are errors or problems; and reliably completes work in a timely fashion” (Bearden, 2008, p. 13)</td>
</tr>
<tr>
<td>Communicating Effectively</td>
<td>An individual who “communicates clearly and effectively with others, in both verbal and written form; checks for understanding among listeners; understands written instructions, procedures, and policies; demonstrates active listening skills; and asks questions to clarify and ensure understanding” (Bearden, 2008, p. 14)</td>
</tr>
</tbody>
</table>

A preliminary analysis of the benefits of the NRP over EVALs was conducted with 25 participants. The NRP had means ranging from 4.5 on both Knowledge and
Problem-Solving to 5.1 on Cooperation/Working Well with Others (SD from 1.30 on Knowledge to 1.52 on Integrity/Honesty), and the EVALs had means ranging from 3.1 on Equal Opportunity to 3.8 on Team Work (SD from 1.05 on Equal Opportunity to 1.36 on Military Bearing). The NRP had variance scores ranging from 1.70 to 2.30; whereas the EVALS had less variability with variance scores between 1.11 and 1.84. Both the standard deviations and variance scores indicate improved variability in the NRP when compared with the EVALs. Furthermore, an analysis of the range of ratings indicated that ratings on the NRP ranged from 1 to 7, whereas EVALs ratings ranged from 3 to 5 with no ratings of 1 or 2. This 1 to 7 range on the NRP indicates that the full range provided by the scale is being used to make ratings. The EVALs, on the other hand, is a 5-point scale, and only the 3, 4, and 5 rating levels are being used to rate sailor performance. Thus, the NRP appears to be an improvement over the EVALs due to the higher variance scores and the increased range used to rate sailors.

Although it is still in its prototype stage, the NRP was chosen as the supervisor rating criterion for this study for two reasons. First, the NRP seemed to show more variability than the EVALs, indicating less range restriction and possibly more accurate ratings. Second, the NRP contained more subscales associated with contextual performance than the EVALs. Though the EVALs was not devoid of contextual variables, the NRP included many more variables associated with contextual performance (see below). A criterion measure with a greater focus on contextual performance was appropriate because the focus of this study was to evaluate the predictive validity of the NCAPS, a personality scale.
Possible Relationships between AFQT and NRP

Motowidlo et al. (1997) define task performance as both “activities that transform raw materials into the goods and services that are the organization’s products” and “activities that service and maintain the technical core by replenishing its supply of raw materials” (p. 75). Examples include: operating a production machine for manufacturing, teaching in a school, distributing products, and providing important coordination, supervising, planning, or staff to enable an organization to function effectively. These types of habits, skills, and knowledge were included on the NRP and are comprised of Task Proficiency/Productivity, Problem Solving/Decision Making, and Knowledge and Support of Unit/Command Objectives. These three dimensions all center on activities that maintain the technical core of the Navy (e.g., completing tasks within deadlines, maintaining sufficient knowledge for completing Navy tasks, and identifying problems and making decisions regarding Navy tasks). Because cognitive ability is purported to predict task-related variables, the AFQT was expected to predict the task-related variables of Task Proficiency/Productivity, Problem Solving/Decision Making, and Knowledge and Support of Unit/Command Objectives. Also, because of the robust finding that cognitive ability is the best predictor of performance, cognitive ability was controlled for when testing for the predictability of the non-cognitive variables.

Possible Relationships between NCAPS and NRP

Motowidlo et al. (1997) define contextual performance as “activities that promote the viability of the social and organizational network and enhance the psychological climate in which the technical core is embedded” (p. 76). The authors cite examples such as helping and cooperating with others, following organizational rules, volunteering to
help complete tasks that are not formally part of the job, defending organizational objectives, and completing with enthusiasm tasks that require persistence. On the NRP, Cooperation/Working Well with Others, Adaptability/Flexibility, Initiative and Self-Development, Integrity/Honesty, Work Ethic, and Communicating Effectively are all contextual variables. Each of these dimensions includes behaviors that, though not formally part of the job, are required for organizational success. These dimensions fall under the domain of contextual performance because the behaviors encompassed by each maintain the social network in which the technical core functions. According to Motowidlo et al. (1997), each of these dimensions should have been predicted by personality variables. In the following section, each of these contextual dimensions is paired with a corresponding NCAPS trait.

**Cooperation/Working Well with Others.** The NCAPS trait of Social Orientation was defined as a trait that predisposes a person to be “outgoing, sociable, warm, likable, cooperative, and participative; likes to work with others rather than alone; likes and accepts people readily and values connections with others; establishes and maintains friendships easily” (Houston et al., 2006, pp. 3-5). Because Cooperation/Working Well with Others is a contextual variable that is conceptually similar to Social Orientation, a relationship between the variables was expected.

**Adaptability/Flexibility.** According to Houston et al. (2006), Stress Tolerance was defined as a trait that causes a person to “maintain composure and retain the ability to think clearly and take effective action when confronted with stressful situations; readily put aside worries to get the job done; and accept criticism without becoming upset” (pp. 3-5). Also, the NCAPS trait of Adaptability/Flexibility was defined as the tendency for an
individual’s “willingness to change his approach to tasks and projects; affinity for variety in work, and ability to work effectively with many different types of people in different types of situations and/or with differing organizational constraints” (pp. 3-5). Because Adaptability/Flexibility is a contextual variable that is conceptually similar to both the NCAPS dimensions of Adaptability/Flexibility and Stress Tolerance, a relationship among these dimensions was expected.

**Initiative and Self-Development.** The NCAPS construct of Achievement was defined as a trait that predisposes a person to “like to set and achieve challenging goals, work hard, persist in the face of significant obstacles, strive for excellence, and be confident in his ability to perform well” (Houston et al., 2006, pp. 3-5). Also, the NCAPS dimension of Self-Reliance was defined as an individual’s tendency to be “self-sufficient, resourceful, able to make his own decisions when appropriate and not dependent on others to get things done” (Houston et al., 2006, pp. 3-5). A relationship was expected among the NCAPS dimensions of Self-Reliance and Achievement and the NRP dimension of Initiative and Self-Development because Initiative and Self-Development is a contextual variable.

**Integrity/Honesty.** Houston et al. (2006) defined the construct of Dutifulness/Integrity as a trait in which a person “does what is right and ethical, accepts authority and follows laws and regulations, and is honest and trustworthy” (pp. 3-5). Because Integrity/Honesty is considered a contextual variable, the NCAPS dimension of Dutifulness/Integrity was expected to be related to the NRP dimension.

**Work Ethic.** According to Houston et al. (2006), the NCAPS trait of Dependability was defined as an individual’s tendency to be “reliable, well organized,
orderly and planful; not easily distracted or bored by routine tasks; does not procrastinate, even when tasks are unpleasant or unexciting” (pp. 3-5). Work Ethic is a contextual variable. Thus, a relationship between the NCAPS dimension of Dependability and the NRP dimension of Work Ethic was expected.

*Communicating Effectively*. Because Communicating Effectively is considered a contextual variable that is conceptually similar to Social Orientation, this NCAPS dimension was expected to predict the NRP dimension of Communicating Effectively. Thus, the following were hypothesized:

**H1** – Cognitive ability, as measured by the overall AFQT scores, will predict the scores on the NRP dimensions of Task Proficiency/Productivity, Problem Solving/Decision Making, and Knowledge and Support of Unit/Command Objectives.

**H2** – The NCAPS Social Orientation subscale will predict the NRP measure of Cooperation/Working Well with Others.

**H3** – The NCAPS subscales of Adaptability/Flexibility and Stress Tolerance will predict the NRP measure of Adaptability/Flexibility.

**H4** – The NCAPS subscales of Achievement and Self-Reliance will predict the NRP measure of Initiative and Self-Development.

**H5** – The NCAPS subscale of Dutifulness/Integrity will predict the NRP measure of Integrity/Honesty.

**H6** – The NCAPS subscale of Dependability will predict the NRP measure of Work Ethic.

**H7** – The NCAPS subscale of Social Orientation will predict the NRP measure of Communicating Effectively.
Method

Participants

The study included a total of 1,315 Navy recruits between the ages of 18 and 37 with a mean age of 20 years old voluntarily completed the NCAPS as part of the initial recruitment battery of tests that are administered to all recruits, including the ASVAB. Of the respondents, 80% were male, and 16% were female. The remaining 4% chose not to provide a gender. With regard to ethnicity, 54% of the respondents were Caucasian, 16% African American, 14% Hispanic, 6% Asian/Pacific Islander, 3% American Indian/Alaska Native, and the remaining 7% did not respond to the question.

Measures

The online measures used in the study consisted of the NCAPS, the ASVAB, and the NRP, all described above. The measures were administered during the recruiting process.

Procedure

Approximately 14,000 Navy recruits completed the NCAPS and ASVAB before beginning Navy training. Over a year later, after these recruits completed boot camp, A-school, and 9-12 months of service in a specific Navy job, a sample of approximately 350 Navy supervisors of these recruits were asked to rate the job performance of as many of these sailors as possible using the online NRP performance evaluation instrument. An e-mail containing names of specific sailors who had taken the NCAPS was sent to recruiters who then contacted the supervisors of each sailor who had previously taken NCAPS. These supervisors were then given either a link or a PDF version of the NRP to
fill out and return. This procedure resulted in the collection of a total of 1,315 completed NRP protocols.

Results

Descriptive Analyses

To begin, descriptive analyses were conducted for the NCAPS, the AFQT, and the NRP. Participant scores were highest on the NCAPS dimension of Dutifulness ($M = 6.32, SD = 0.60$) and lowest on Self-Reliance ($M = 5.30, SD = 0.75$). This is consistent with the Navy population statistics in which Dutifulness scores are highest ($M = 6.10, SD = .78$) and Self-Reliance is lowest ($M = 5.58, SD = .77$) (Houston, et al., 2006). For the AFQT, the mean score was 57.69 with a standard deviation of 17.25. The AFQT was standardized on a large Navy recruit population and generally has a mean of 50 with a standard deviation of 10. However, the mean observed in this subset of the population indicates that this sample did better on average and had a wider standard deviation than the rest of the population (Kilburn, 1998). For the NRP, participant scores were highest on the dimension of Cooperation/Working Well with Others ($M = 5.11, SD = 1.42$), whereas scores were lowest on both Knowledge and Support of Unit/Command Objectives ($M = 4.49, SD = 1.30$) and Problem Solving and Decision Making ($M = 4.49, SD = 1.33$). The NRP had a Cronbach’s Alpha of .95. Because the NRP has not been used before in the Navy setting, population statistics have not yet been collected, and thus cannot be analyzed for consistency. Full descriptive results are presented in Table 2.
Table 2

*Descriptive Statistics for the NCAPS Dimensions, AFQT, and NRP*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability/Flexibility</td>
<td>5.73</td>
<td>0.77</td>
</tr>
<tr>
<td>Achievement</td>
<td>5.86</td>
<td>0.65</td>
</tr>
<tr>
<td>Dependability</td>
<td>5.92</td>
<td>0.91</td>
</tr>
<tr>
<td>Dutifulness</td>
<td>6.32</td>
<td>0.60</td>
</tr>
<tr>
<td>Social Orientation</td>
<td>5.78</td>
<td>0.78</td>
</tr>
<tr>
<td>Self-Reliance</td>
<td>5.30</td>
<td>0.75</td>
</tr>
<tr>
<td>Stress Tolerance</td>
<td>5.73</td>
<td>0.96</td>
</tr>
<tr>
<td>AFQT</td>
<td>57.69</td>
<td>17.25</td>
</tr>
<tr>
<td>Cooperation/Working Well with Others</td>
<td>5.11</td>
<td>1.42</td>
</tr>
<tr>
<td>Task Proficiency and Productivity</td>
<td>4.91</td>
<td>1.34</td>
</tr>
<tr>
<td>Adaptability/Flexibility</td>
<td>4.75</td>
<td>1.38</td>
</tr>
<tr>
<td>Initiative and Self-Development</td>
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<td>1.42</td>
</tr>
<tr>
<td>Knowledge and Support of Unit/Command Objectives</td>
<td>4.49</td>
<td>1.30</td>
</tr>
<tr>
<td>Problem Solving and Decision Making</td>
<td>4.49</td>
<td>1.33</td>
</tr>
<tr>
<td>Integrity/Honesty</td>
<td>4.98</td>
<td>1.52</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>4.97</td>
<td>1.49</td>
</tr>
<tr>
<td>Communicating Effectively</td>
<td>4.72</td>
<td>1.30</td>
</tr>
</tbody>
</table>

*Note. N = 1315.*
Correlation Analysis

Next, correlation matrices were inspected for NCAPS and AFQT dimensions. Some of the highest intercorrelations within the NCAPS included Dependability and Achievement ($r = .46, p < .05$) and Dependability and Dutifulness ($r = .44, p < .05$). The highest correlation between an NCAPS dimension and the AFQT was the dimension of Self-Reliance ($r = .23, p < .05$). Correlations between NCAPS and AFQT are presented in Table 3.

Table 3

*Intercorrelations among NCAPS Dimensions and AFQT*

<table>
<thead>
<tr>
<th></th>
<th>ADF</th>
<th>AV</th>
<th>DEP</th>
<th>DUT</th>
<th>SO</th>
<th>SRL</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AV</td>
<td>.42*</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>DEP</td>
<td>.37*</td>
<td>.46*</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>.26*</td>
<td>.34*</td>
<td>.44*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SO</td>
<td>.40*</td>
<td>.26*</td>
<td>.27*</td>
<td>.26*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRL</td>
<td>.17*</td>
<td>.24*</td>
<td>.09*</td>
<td>.04</td>
<td>-.11*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>.43*</td>
<td>.41*</td>
<td>.42*</td>
<td>.30*</td>
<td>.29*</td>
<td>.19*</td>
<td></td>
</tr>
<tr>
<td>AFQT</td>
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<td>.05</td>
<td>-.05</td>
<td>.06*</td>
<td>-.12*</td>
<td>.23*</td>
<td>.06*</td>
</tr>
</tbody>
</table>

Note. $N = 1315$. ADF = Adaptability/Flexibility, AV = Achievement, DEP = Dependability, DUT = Dutifulness, SO = Social Orientation, SRL = Self-Reliance, ST = Stress Tolerance, AFQT = Armed Forced Qualification Test. *. Correlation is significant $p < 0.05$ (2-tailed).
Next, a correlation matrix for NRP and the AFQT was inspected. The highest correlations among the NRP dimensions included both Initiative and Self-Development and Task Proficiency/Productivity ($r = .76, p < .05$) and Integrity/Honesty and Work Ethic ($r = .76, p < .05$). This inspection also revealed significant correlations between the AFQT scores and all of the NRP scores designated as contextual variables. The highest correlation was with the NRP dimension of Communicating Effectively ($r = .10, p < .05$). Because all of the contextual variables were significantly correlated with the AFQT, cognitive ability was controlled for in all of the subsequent regression analyses in order to assess incremental validity. The full correlation results between NRP and the AFQT are presented in Table 4.
Table 4

*Intercorrelations among the NRP Dimensions and AFQT*

<table>
<thead>
<tr>
<th></th>
<th>Coop</th>
<th>Task</th>
<th>Adapt</th>
<th>Ini</th>
<th>Know</th>
<th>Prob</th>
<th>Int</th>
<th>Work</th>
<th>Comm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Task</td>
<td>.70*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Adapt</td>
<td>.73*</td>
<td>.75*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ini</td>
<td>.65*</td>
<td>.76*</td>
<td>.73*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Know</td>
<td>.63*</td>
<td>.68*</td>
<td>.69*</td>
<td>.71*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob</td>
<td>.63*</td>
<td>.73*</td>
<td>.71*</td>
<td>.73</td>
<td>.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Int</td>
<td>.69*</td>
<td>.68*</td>
<td>.70*</td>
<td>.68*</td>
<td>.65*</td>
<td>.68*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td>.69*</td>
<td>.75*</td>
<td>.72*</td>
<td>.73*</td>
<td>.65*</td>
<td>.68*</td>
<td>.76*</td>
<td></td>
<td></td>
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<tr>
<td>Comm</td>
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<td>.70*</td>
<td>.70*</td>
<td>.68*</td>
<td>.67*</td>
<td>.71*</td>
<td>.68*</td>
<td>.72*</td>
<td></td>
</tr>
<tr>
<td>AFQT</td>
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<td>.04</td>
<td>.06*</td>
<td>.07*</td>
<td>.04</td>
<td>.08*</td>
<td>.08*</td>
<td>.07*</td>
<td>.10*</td>
</tr>
</tbody>
</table>

*Note.* $N = 1315$. Coop = Cooperation/Working Well with Others, Task = Task Proficiency and Productivity, Adapt = Adaptability/Flexibility, Ini = Initiative and Self-Development, Know = Knowledge and Support of Unit/Command Objectives, Prob = Problem Solving and Decision Making, Int = Integrity/Honest, Work = Work Ethic, Comm = Communicating Effectively, AFQT = Armed Forced Qualification Test. *Correlation is significant $p < 0.05$ (2-tailed).

Next, a correlation analysis was conducted between the NRP and the NCAPS variables. The highest correlation was between the NRP dimension of Initiative and Self-Development and the NCAPS dimension of Achievement ($r = .08, p < .05$). Other correlations that give information about the hypothesized relationships between NCAPS and NRP dimensions included the significant correlations between the NRP dimension of Integrity and the NCAPS dimension of Dutifulness ($r = .06, p < .05$) and the NRP
dimension of Initiative and Self-Development and the NCAPS dimension of Achievement \((r = .08, p < .05)\). Full correlation results are presented in Table 5.

Table 5

<table>
<thead>
<tr>
<th>NRP Dimension</th>
<th>NRP Coop</th>
<th>NRP Task</th>
<th>NRP Adapt</th>
<th>NRP Ini</th>
<th>NRP Know</th>
<th>NRP Prob</th>
<th>NRP Int</th>
<th>NRP Work</th>
<th>NRP Comm</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCAPS ADF</td>
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<td>.02</td>
<td>.04</td>
<td>.02</td>
<td>.03</td>
<td>.04</td>
<td>-.02</td>
<td>.00</td>
<td>.04</td>
</tr>
<tr>
<td>NCAPS AV</td>
<td>.01</td>
<td>.03</td>
<td>.05</td>
<td>.08*</td>
<td>.05</td>
<td>.04</td>
<td>.03</td>
<td>.06*</td>
<td>.05</td>
</tr>
<tr>
<td>NCAPS DEP</td>
<td>.01</td>
<td>.04</td>
<td>.06*</td>
<td>.07*</td>
<td>.04</td>
<td>.05</td>
<td>.00</td>
<td>.00</td>
<td>.01</td>
</tr>
<tr>
<td>NCAPS DUT</td>
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<td>.06*</td>
<td>.06*</td>
<td>.07*</td>
<td>.04</td>
<td>.05</td>
<td>.06*</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>NCAPS SO</td>
<td>.02</td>
<td>.02</td>
<td>.03</td>
<td>.02</td>
<td>.02</td>
<td>.00</td>
<td>-.01</td>
<td>.02</td>
<td>.03</td>
</tr>
<tr>
<td>NCAPS SRL</td>
<td>-.04</td>
<td>-.03</td>
<td>-.04</td>
<td>-.01</td>
<td>-.01</td>
<td>.01</td>
<td>-.03</td>
<td>-.04</td>
<td>.02</td>
</tr>
<tr>
<td>NCAPS ST</td>
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<td>.02</td>
<td>.05</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
<td>-.02</td>
<td>-.02</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. \(N = 1315\). ADF = Adaptability/Flexibility, AV = Achievement, DEP = Dependability, DUT = Dutifulness, SO = Social Orientation, SRL = Self-Reliance, ST = Stress Tolerance, Coop = Cooperation/Working Well with Others, Task = Task Proficiency and Productivity, Adapt = Adaptability/Flexibility, Ini = Initiative and Self-Development, Know = Knowledge and Support of Unit/Command Objectives, Prob = Problem Solving and Decision Making, Int = Integrity/Honesty, Work = Work Ethic, Comm = Communicating Effectively. * Correlation is significant \(p < 0.05\) (2-tailed).

Exploratory Factor Analysis

Due to the many significant correlations found among the NCAPS dimensions, an exploratory factor analysis was conducted to analyze which variables might be collapsed in order to make a more parsimonious model. A principal components analysis with an oblimin rotation was used to factor the NCAPS dimensions. Principal components
analysis was chosen because the primary objective of the analysis was data reduction. Oblimin rotation was chosen because of the high probability that the constructs are correlated, given that they are all considered personality variables. Results showed that the NCAPS was reduced to two factors. The first factor consisted of the dimensions of Adaptability/Flexibility, Achievement, Dependability, Dutifulness, Social Orientation, and Stress Tolerance. The second factor consisted of Self-Reliance alone. Factor loadings are presented in Table 6.

Table 6

*Factor Loadings for NCAPS Dimensions*

<table>
<thead>
<tr>
<th></th>
<th>Component 1</th>
<th>Component 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability/Flexibility</td>
<td>.69</td>
<td>.10</td>
</tr>
<tr>
<td>Achievement</td>
<td>.70</td>
<td>.28</td>
</tr>
<tr>
<td>Dependability</td>
<td>.73</td>
<td>.01</td>
</tr>
<tr>
<td>Dutifulness</td>
<td>.62</td>
<td>-.12</td>
</tr>
<tr>
<td>Social Orientation</td>
<td>.58</td>
<td>-.45</td>
</tr>
<tr>
<td>Self-Reliance</td>
<td>.14</td>
<td>.90</td>
</tr>
<tr>
<td>Stress Tolerance</td>
<td>.69</td>
<td>.18</td>
</tr>
</tbody>
</table>

*Note.* Loadings based on a principal component analysis with oblimin rotation.

Because the NRP dimensions also displayed high correlations, a factor analysis was conducted. Again, because the primary objective of the analysis was data reduction, principal components analysis was chosen. Also, the oblimin rotation method was used
due to the high probability that the constructs are correlated. All of the NRP dimensions are related to job performance. Results of the factor analysis indicated only one factor for the NRP. Factor loadings are presented in Table 7.

Table 7

Factor Loadings for NRP Dimensions

<table>
<thead>
<tr>
<th>Construct</th>
<th>Component 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation/Working Well with Others</td>
<td>.83</td>
</tr>
<tr>
<td>Task Proficiency and Productivity</td>
<td>.89</td>
</tr>
<tr>
<td>Adaptability/Flexibility</td>
<td>.87</td>
</tr>
<tr>
<td>Initiative and Self-Development</td>
<td>.87</td>
</tr>
<tr>
<td>Knowledge and Support of Unit/Command Objectives</td>
<td>.83</td>
</tr>
<tr>
<td>Problem Solving and Decision Making</td>
<td>.86</td>
</tr>
<tr>
<td>Integrity/Honesty</td>
<td>.85</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>.87</td>
</tr>
<tr>
<td>Communicating Effectively</td>
<td>.85</td>
</tr>
</tbody>
</table>

Note. Loadings based on a principal components analysis.

Checking for Assumptions

Before beginning the regression analyses, all of the data were screened for violations of assumptions associated with regression. Homoscedasticity, linearity, multicollinearity, and normality were analyzed using various statistical methods and
visual inspection of graphical data. Also, missing data and outliers were analyzed for
trends.

Upon visual inspection of graphical representations of the studentized residual
and the standardized predicted values, none of the data violated assumptions of
homoscedasticity or linearity. Furthermore, none of the Variance Inflation Factor (VIF)
values or Tolerance values indicated collinearity among the tested dimensions. However,
all of the dimensions on the NRP and the NCAPS, excluding Self-Reliance, showed
negative skew, indicating that there were relatively few low values for each dimension.
The AFQT showed positive skewness, indicating that there were relatively few high
values. Also, both the NRP dimensions of Initiative and Self-Development and
Communicating Effectively as well as the NCAPS dimension of Dependability displayed
negative kurtosis, indicating that there was relatively high variance with few participants’
scores centered around the mean. Furthermore, the NCAPS dimensions of
Adaptability/Flexibility, Achievement, Dutifulness, and Social Orientation displayed
positive kurtosis, indicating that there was relatively low variance within observations,
with most scores clustered around the mean. Though, these violations were taken into
consideration when examining the results, multiple regression is robust to these violations.
Therefore, no data transformations were done to normalize the data.

Test of Hypotheses

In order to test Hypothesis 1, regression analyses using the enter method were run.
The expectation was that cognitive ability, as measured by the overall AFQT scores,
would predict the variables of Task Proficiency/Productivity, Problem Solving/Decision
Making, and Knowledge and Support of Unit/Command Objectives based on the theory
that task performance is driven by cognitive ability (Motowidlo et al., 1997). Results indicated that the AFQT was significant in relation to Problem Solving/Decision Making ($R = .077$, $F(2, 1312) = 7.76, p < .05$). R-square was .006, indicating that AFQT accounted for .6% of the variance associated with Problem Solving/Decision Making. Therefore, Hypothesis 1 was only partially supported.

Hypothesis 2 was tested through hierarchical multiple regression analysis in order to assess incremental validity over the AFQT. Even though the AFQT accounted for only .6% of the variance associated with Problem Solving/Decision Making, the dimension still correlated significantly, albeit none greater than $r = .10$ ($p < .05$), with all of the contextual variables. Because there was still potential for the AFQT to share some of the variance associated with the personality predictors and because of the firmly established convention that cognitive ability is the best predictor of job performance, the AFQT was controlled for throughout the remainder of the hypothesis testing so that the personality validity coefficients would not be overestimated due to shared variance with the AFQT. The expectation was that Social Orientation would provide incremental validity over the AFQT for the NRP measure of Cooperation/Working Well with Others. The overall model was significant ($F(2, 1312) = 2.99, p < .05$). However, Social Orientation did not provide any incremental validity. The AFQT provided a multiple $R$ of .067 ($p < .05$) with an R-square of .01, indicating that the AFQT accounts for 1% of the variance associated with Cooperation/Working Well with Others. Therefore, Hypothesis 2 was not supported.

Hierarchical multiple regression analysis was also used to test Hypothesis 3. The expectation was that the NCAPS dimensions of Adaptability/Flexibility and Stress
Tolerance would provide incremental validity beyond that of the AFQT for the NRP measure of Adaptability/Flexibility. The overall model was significant ($R^2 = .007$, $F(2, 1312) = 2.92, p < .05$). However, neither Adaptability/Flexibility nor Stress Tolerance provided additional incremental validity. The multiple R for the AFQT was .081 ($p < .05$) with an R-square of .007, indicating that cognitive ability can account for .7% of the variability associated with Adaptability/Flexibility. Thus, Hypothesis 3 was not supported.

Hypothesis 4 was tested using a hierarchical multiple regression analysis. The expectation was that the NCAPS measures of Achievement and Self-Reliance would provide incremental validity beyond the AFQT for the NRP measure of Initiative and Self-Development. The overall model was significant ($R^2 = .01$, $F(2, 1312) = 5.52$). The AFQT provided a multiple R value of .067, and Achievement provided incremental validity beyond the AFQT of .034 ($p < .05$). However, Self-Reliance did not provide significant incremental validity. Therefore, Hypothesis 4 was only partially supported.

Hierarchical regression analysis was conducted to test Hypothesis 5. The NCAPS measure of Dutifulness was expected to provide incremental validity beyond the AFQT for the NRP measure of Integrity/Honesty. Results indicated that the overall model was significant ($R^2 = .010$, $F(2, 1312) = 7.94, p < .05$). The AFQT had a multiple R value of .078 ($p < .05$), and Dutifulness provided an incremental validity of .021 beyond the AFQT. Therefore, Hypothesis 5 was supported.

Hypothesis 6 was tested using hierarchical multiple regression analyses. The NCAPS trait of Dependability was expected to provide incremental validity for the NRP measure of Work Ethic beyond that provided by the AFQT. The overall model was significant with a multiple R value of .071 and an R-square of .005 ($F(2, 1312) = 3.36, p$
<.05). However, Dependability did not provide a significant incremental validity beyond the AFQT. Thus, cognitive ability accounted for .5% of the variance associated with Work Ethic, and Hypothesis 6 was not supported.

Finally, hierarchical multiple regression analysis was used to test the significance of Hypothesis 7. The expectation was that the NCAPS measure of Social Orientation would provide incremental validity beyond the AFQT for the NRP measure of Communicating Effectively. Results suggested the overall model was significant ($R = .110$, $R^2 = .011$, $F(2, 1312) = 7.46, p < .05$). However, Social Orientation did not provide significant incremental validity beyond the AFQT. The AFQT was able to account for 1% of the variance associated with Communicating Effectively, but Social Orientation was not predictive. Therefore, Hypothesis 7 was not supported. Full regression results are presented in Table 8.
Table 8

Hierarchical Multiple Regression Results

<table>
<thead>
<tr>
<th>NRP Variable</th>
<th>Predictor Variables</th>
<th>Beta Weights</th>
<th>R Squared Change</th>
<th>Ind. Sig. Levels</th>
<th>Mult. R</th>
<th>$F$ value</th>
<th>Overall Sig.</th>
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<tr>
<td>Task</td>
<td>AFQT</td>
<td>.04</td>
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<td>.067</td>
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<td>n.s.</td>
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<tr>
<td>Prob</td>
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<td>.077</td>
<td>.067</td>
<td>$F(1, 1313) = 7.76$</td>
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<td>AFQT</td>
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<td>.041</td>
<td>.067</td>
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<td>n.s.</td>
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<tr>
<td>Coop</td>
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<td>.067</td>
<td>$F(2, 1312) = 2.99$</td>
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<tr>
<td></td>
<td>SO</td>
<td>.02</td>
<td>n.s.</td>
<td>n.s.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adapt</td>
<td>AFQT</td>
<td>.06</td>
<td>$p &lt; .05$</td>
<td>.081</td>
<td>$F(3, 1311) = 2.92$</td>
<td>$p &lt; .05$</td>
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</tr>
<tr>
<td></td>
<td>ST</td>
<td>.03</td>
<td>n.s.</td>
<td>n.s.</td>
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<td></td>
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<td>n.s.</td>
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<tr>
<td>Ini</td>
<td>AFQT</td>
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<td>$p &lt; .05$</td>
<td>.067</td>
<td>$F(3, 1311) = 5.88$</td>
<td>$p &lt; .05$</td>
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<td></td>
<td>AV</td>
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<td>$p &lt; .05$</td>
<td>.101</td>
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<td>SRL</td>
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<td>n.s.</td>
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<td>Int</td>
<td>AFQT</td>
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<td>$p &lt; .05$</td>
<td>.078</td>
<td>$F(2, 1312) = 7.94$</td>
<td>$p &lt; .05$</td>
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<tr>
<td></td>
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<td>.06</td>
<td>$p &lt; .05$</td>
<td>.099</td>
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<td></td>
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<tr>
<td>Work</td>
<td>AFQT</td>
<td>.07</td>
<td>$p &lt; .05$</td>
<td>.071</td>
<td>$F(2, 1312) = 3.36$</td>
<td>$p &lt; .05$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DEP</td>
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<td>n.s.</td>
<td>n.s.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Comm</td>
<td>AFQT</td>
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<td>.110</td>
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<td>$p &lt; .05$</td>
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</tr>
<tr>
<td></td>
<td>SO</td>
<td>.05</td>
<td>n.s.</td>
<td>n.s.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Structural Equation Model Analysis**

In addition to regression analysis, a Structural Equation Model (SEM) analysis was conducted in order to more fully explore Motowidlo et al.’s theory of individual differences in task and contextual performance. To begin, both the personality and the task and contextual performance measurement models were tested with Confirmatory Factor Analysis (CFA). A general model using the MPlus statistical software was run. Results suggested that the task and contextual performance model resulted in a reasonably good fit, ($\chi^2(26, \, N = 1315) = 254.01, \, p < .05, \, RMSEA = .08, \, CFI = .98, \, SRMR = .02$). However, there was a correlation between task performance and contextual performance of .98 ($p < .05$), suggesting that there is only one underlying factor and no real distinction between task and contextual performance. The task and contextual performance model tested is presented in Figure 1.
Because of the high correlations between task and contextual performance, testing Motowidlo et al.’s model was not possible. Instead, a model with all of the NRP dimensions as one latent factor, labeled as job performance, was tested. Also, because incremental validity was of interest, all of the personality variables were allowed to enter the model simultaneously without one latent factor to explain them. Finally, cognitive ability was controlled for by adding it into the model as a predictor. Again, a general model was run using the MPlus statistical software. Results suggested the model resulted in a reasonably good fit, ($\chi^2(91, N = 1315) = 367.05, p < .05, RMSEA = .05, CFI = .97, SRMR = .02$). In support of the regression findings, cognitive ability was the only
significant predictor for the overall job performance factor ($R = .09, p < .05$). None of the personality variables was able to provide incremental validity beyond cognitive ability. The final model tested is presented in Figure 2.

![Figure 2. Final Model Tested Using Structural Equation Modeling. Note. ADF = Adaptability/Flexibility, AV = Achievement, DEP = Dependability, DUT = Dutifulness, SO = Social Orientation, SRL = Self-Reliance, ST = Stress Tolerance, AFQT = Armed Forces Qualification Test, Coop = Cooperation/Working Well with Others, Task = Task Proficiency and Productivity, Adapt = Adaptability/Flexibility, Ini = Initiative and Self-Development, Know = Knowledge and Support of Unit/Command Objectives, Prob = Problem Solving and Decision Making, Int = Integrity/Honest, Work = Work Ethic, Comm = Communicating Effectively. * Relationship is significant $p < 0.05$.](image-url)
Discussion

Hypothesis 5 was the only hypothesis that was fully supported. The NCAPS dimension of Dutifulness provided significant incremental validity beyond the AFQT for the NRP dimension of Integrity/Honest. Hypotheses 1 and 4 were partially supported. Problem Solving/Decision Making was predicted by the AFQT for Hypothesis 1, and for Hypothesis 4 Achievement provided incremental validity beyond the AFQT for the NRP dimension of Initiative and Self-Development. Despite significant results, however, the effect sizes of the regression analyses were not large enough to have any real-world application. Neither the AFQT nor the personality variables could account for more than 1% of the variance associated with any of the NRP job performance measures. Therefore, even though some hypotheses were supported, the effect sizes were too small to have any practical application for the Navy.

Hypotheses 2, 3, 6, and 7 were not supported. Contextual performance, as measured by the NRP variables, was not predicted by the NCAPS personality variables. Furthermore, the AFQT was the only significant predictor for each of the following contextual variables: Cooperation/Working Well with Others, Adaptability/Flexibility, Work Ethic, and Communicating Effectively. Also, the AFQT was not predictive of the task variables of Task Proficiency/Productivity and Knowledge and Support of Unit/Command Objectives.

Consistent with the regression analyses, SEM was also unable to confirm a good fit for the proposed model of personality and task and contextual job performance. A principal components analysis as well as a CFA indicated that the NRP measure was unable to be broken down into task and contextual performance. Instead, all of the items
loaded onto one underlying factor. A test of the model with the one latent variable of job performance yielded a reasonably good fitting model. However, the NCAPS personality dimensions were unable to provide incremental validity beyond the AFQT. Thus, cognitive ability was the only significant predictor of job performance as a whole.

Because of the mixed support for the hypotheses and the lack of fit for the proposed model, there is the possibility that Motowidlo et al’s theory of job performance is incorrect. However, given the preliminary evidence seen in prior research studies and the partial support for a few of the hypotheses, this possibility is unlikely (Bergman et al., 2008; Motowidlo & Scotter, 1994). There are several other possibilities that could explain the lack of significant findings for the remaining hypotheses.

First, the year long lag-time between the NCAPS administration and the NRP ratings may be problematic. Because military service has the potential to be life-changing, personality traits among sailors may not be stable enough to allow for prediction so far into the future. In fact, McCrae and Costa (1994) stated that “personality traits change with development, but reach final adult levels at about age 30” (p. 1). The mean age for sailors in the sample used was 20 years old, meaning nearly all of the sailors had yet to reach the age that personality becomes stable and fixed. Because sailors had yet to reach this age, a strong environmental change is more likely to impact their personality characteristics. Thus, many sailors may have experienced personality changes throughout the year because of their Navy life experience.

Second, the Navy may provide an atmosphere that is too structured for true contextual performance to be observed. In the job performance model posited by Tett and Burnett (2003), situations presented within the organization must be relatively weak (i.e.,
the influence of extrinsic rewards must not be so great that individual differences would not be negated). The Navy promotes a strong culture of teamwork and the “one-for-all” mentality. When supervisors are present, there may not be many unstructured situations in which contextual performance can be observed to an accurate degree.

Also, Tett and Burnett (2003) posit that situations must be trait relevant in order for certain trait behaviors to present themselves. Because varying degrees of certain traits are needed in different jobs, some traits are likely to be more predictive in one job versus another. Because this study looked at predictive capability across jobs many important predictive traits within jobs may have been overlooked.

Finally, the NRP measure may not be adequately tapping the dimensions associated with task and contextual performance. Though the NRP correlated with the EVALs, indicating that the NRP does indeed measure job performance, the high intercorrelations among the NRP measures indicated that there was only one underlying construct for all of the NRP dimensions instead of the two underlying constructs hypothesized. This single construct was further supported by the fact that NRP dimensions all loaded onto one factor during a principal components analysis as well as a CFA. If the NRP were measuring both task and contextual performance separately, the factor analysis should have resulted in a two-factor structure and the CFA model should not have resulted in such high correlations between task and contextual performance. Because there was only one factor, this indicates that there is no distinct difference between task variables and contextual variables on the NRP. For this reason, the possibility exists that the differentiation between task variables and contextual variables may be too minute to make much of a difference in most current job performance.
measures. However, given previous evidence for the distinction, more research will be needed before the conclusion can be drawn that the distinction between contextual and task performance is not meaningful. (Bergman et al., 2008; Motowidlo & Scotter, 1994).

With regard to the practical world, distinguishing between contextual and task performance for the purposes of using personality as a predictor of job performance may be worthwhile only in highly unstructured environments. For this reason, personality may become a meaningful predictor only in jobs that involve a great deal of autonomy and opportunity for independent decision making. Because many jobs do not provide this sort of latitude, using other important outcome measures like turnover and job satisfaction may prove a more meaningful endeavor than the prediction of job performance using personality. In this study, even cognitive ability as measured by the AFQT was unable to meaningfully predict job performance. Due to the widespread findings that cognitive ability generally correlates .5 with overall job performance across jobs, the use of contextual variables as job performance measures becomes suspect (Hunter, 1980; Hunter & Hunter, 1988; Pearlman et al., 1980; Schmidt & Hunter, 1998;). This suspicion is raised because for this study the NRP, which was specifically geared toward contextual performance, failed to meaningfully correlate with the AFQT.

Furthermore, many of the contextual dimensions are related to concepts such as organizational citizenship behavior and prosocial work behavior. Though these behaviors are desirable, they are considered to be discretionary and thus are not essential for satisfactory performance on the job. Therefore, even if personality can predict contextual performance to a meaningful degree, using personality for selection purposes in this
context would be unwise due to the fact that discretionary behaviors are not a necessity for satisfactory job performance.

**Limitations**

One of the limitations of this study was the all Navy sample. Navy life presents unique, highly structured working conditions that are not normally experienced in much of the working population. As stated earlier, the Navy may not present situations that are unstructured enough for true individual differences in contextual performance to be observed. Thus, the results observed in this study may not generalize to the population.

Another potential limitation is the lack of validity evidence for the contextual dimensions on the NRP criterion measure. Though the NRP appears to have face validity concerning contextual performance dimensions, there is not enough evidence that the measure accurately distinguishes between contextual and task performance. Though the NRP correlated with the EVALs, indicating it is likely measuring task performance, the possibility exists that the NRP is not a viable measure of contextual performance in the Navy fleet.

Finally, all of the NRP ratings were collected via e-mail through Navy recruiters. Previous evidence suggests that collecting performance ratings in person and after providing training for how the scales should be utilized results in more valid ratings (Bernardin & Smith, 1981). The NRP was collected through e-mail with only textual instructions and no training conducted. Though the NRP showed more variance than the EVALs (NRP ranged from 1.70 to 2.30; whereas the EVALS ranged from 1.11 to 1.84) and also had a good Cronbach’s Alpha reliability of .95, all of the scores were still negatively skewed indicating that there were few ratings on the low end of the NRP scale.
For this reason, the NRP may still have leniency issues that make the prototype a better measure than the EVALs but still not an ideal measure of job performance.

**Future Research**

First, future research should address whether the NRP is a valid measure of contextual and task performance. Even though the AFQT provided significant prediction of the majority of the NRP subscales, the effect sizes were small when compared with the past findings that GMA correlates about .5 after correction for criterion unreliability and range restriction with both subjective and objective measures of job performance (e.g., Hunter, 1980; Hunter & Hunter, 1988; Pearlman et al., 1980; Schmidt & Hunter, 1998;). A validation effort looking at the content and construct validity of the NRP subscales would be beneficial for understanding the underlying constructs that the NRP is tapping.

Future research should also address whether Sailor personality traits remain stable over a time period of 9 – 12 months. Because personality does not stabilize until age 30, the NCAPS may not be useful for classification (McCrae & Costa, 1994). If instability of personality traits proves to be problematic, the NCAPS will not be able to be used to classify Navy sailors due to the fact that almost all sailors join the Navy between the ages of 18-24.

With regard to the Navy, research should be conducted to assess the structure of the situations encountered by sailors. If Tett and Burnett (1993) are correct, the Navy may present work environments that are too structured for unique contextual performance to be observed. Because of the strong structure of the Navy, contextual performance may be observed but everyone may perform in the same way within the structured environment. If this is the case, a new measure of job performance may be needed.
Perhaps, if structured and unstructured situations can be identified, a performance rating could be devised that is centered around the unstructured situations. Thus, true contextual performance could be observed. However, if unstructured situations do not exist, personality will not be able to predict contextual performance within the Navy because of the lack of variability in the sailor population.

Finally, more research should be conducted regarding the dichotomy between contextual and task performance. The results of this study did not confirm the dichotomy between contextual and task performance. However, there were enough partially supported hypotheses to merit further research into the theory. With the prior empirical evidence supporting Motowidlo et al.’s theory (Bergman et al., 2008; Motowidlo & Scotter, 1994) and the possibility that the NRP is not a valid measure of contextual or task performance, more research must be conducted before Motowidlo et al. can be considered an inappropriate theory of job performance.

Future Directions for the NCAPS and NRP

At this point, the Navy should take a step back to analyze the NCAPS with regard to personality stability. Test-retest reliability with various lag-times between tests should be assessed in order to analyze how much personality may change with time and in what direction. Previous studies indicate that mean increases in traits such as Congeniality, Diligence, Generosity, Orderliness, and Leadership as well as Conscientiousness and Agreeableness occur across the ages of 17 to 24, especially with regard to environmental influences (Robins, Fraley, Roberts, & Trzesniewski, 2001; Stein, Newcomb, & Bentler, 1986). Furthermore, traits such as Aggression and Stress Reaction tend to decrease between the ages of 17 to 24 (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2009).
Furthermore, Capsi and Moffitt (1993) posit that the most favorable conditions for personality change occur “during transition into new situations, when there is a strong press to behave, where previous responses are actively discouraged, and where clear information is provided about how to behave adaptively” (p. 248). For a young sailor entering the Navy, there is a transition for that sailor within a structured environment in which behaving is paramount to success and a clear picture of how to behave has been presented. With regard to the NCAPS, traits may be increasing or decreasing substantially across boot camp due to these environmental influences. The possibility exists that once this initial adjustment to Navy life takes place, personality traits may become more stable due to these environmental pressures to conform to Navy life. If traits do become more stable following boot camp, the Navy should consider administering NCAPS following boot camp instead of at the outset before the sailor has experienced an initial adjustment period.

With regard to the NRP, the Navy should consider a different type of outcome measure for their purposes. Because performance is not a large issue within the entrance-level Navy ratings, a measure of sailor satisfaction or sailor re-enlistment intentions may be a more beneficial outcome measure to consider. Ultimately, if the Navy hopes to predict sailor satisfaction and re-enlistment, a study concerning the NCAPS ability to predict these outcomes would be a worthwhile endeavor.
References


Appendix A

Informed Consent

Navy Computer Adaptive Personality Scales (NCAPS) NPRST-2003-0005

You are being invited to take part in a research study titled “Validation of Navy Computer Adaptive Personality Scales (NCAPS)”, conducted by the Navy Personnel Research, Studies, and Technology (NPRST) division of the Bureau of Naval Personnel. Your decision to take part is voluntary and you may refuse to take part or choose to stop taking part at any time. A decision not to take part or to stop being a part of the research project will not negatively impact you in any way.

PURPOSE: The purpose of this study is to collect information concerning the ability of NCAPS to predict training and fleet performance. NCAPS is an innovated adaptive personality measure developed by researchers at NPRST. This personality measure is being evaluated for future use as a classification tool to better match Sailors to available jobs within the Navy.

PARTICIPATION: Completion of this Questionnaire is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes. You may discontinue participation at any time without penalty. There is no direct benefit from being in this study, however, taking part may help improve Navy policies, programs, and/or procedures for Navy personnel in the future.

Risk(s): The only risk to you is inappropriate disclosure of data you provide. However, NPRST has a number of procedures in place to ensure that the data collected is safe and protected.

CONFIDENTIALITY: All responses will be held in confidence by NPRST. Information you provide will be statistically summarized with the responses of others, and will not be attributable to any single individual. The information provided will not become part of your military record and will not affect your career in any way. We ask you to provide your Social Security Number and some basic demographic information. This is so we can collect additional information from other data sources in order to determine the relationship of NCAPS to areas such as training and job performance, career and job satisfaction, attrition, etc.

QUESTIONS: If you have any questions about this research study, please contact the Project Director at (901) 874-3366. If you have any questions regarding Human Subjects issues, please contact the NPRST Protection of Human Subjects Committee, DSN 882-4994, COM (901) 874-4994 or email nprstpao@persnet.navy.mil.
PLEASE CHECK ONE OF THE FOLLOWING:

<table>
<thead>
<tr>
<th>I HAVE READ THE INFORMED CONSENT AND I:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not wish to participate in this study.</td>
</tr>
<tr>
<td>Wish to voluntarily participate in this study.</td>
</tr>
</tbody>
</table>

NPRST PHS STATEMENT: This study (NPRST-2003-0005) has been reviewed by the Navy Personnel Research, Studies, & Technology department’s Protection of Human Subjects (PHS) Committee of the Navy Personnel Command. For any questions about research subject’s rights, call the NPRST PHS at (901) 874-4994, e-mail nprstpao@persnet.navy.mil.
Appendix B

Performance Rating for NCAPS Project
Informed Consent and Privacy Act Statement

**NCAPS Sailor Job Performance Assessment survey, NPRST-2003-0005**

You are being invited to take part in a research study titled Validation of Navy Computer Adaptive Personality Scales (NCAPS), conducted by the Navy Personnel Research, Studies, and Technology (NPRST) division of the Bureau of Naval Personnel. Your decision to take part is voluntary and you may refuse to take part or choose to stop taking part at any time. A decision not to take part or to stop being a part of the research project will not negatively impact you in any way. Authority to request this information is granted under Title 5, U.S. Code 301, and Department of the Navy Regulations. License to administer this survey is granted under OPNAV Report Control Symbol 1230-1, which expires on 21 October 2008.

**PURPOSE:** The purpose of this survey is to collect performance data on one of your subordinates using a number of performance appraisal rating scales. These scales were developed as part of a study undertaken for the Navy to create measures of performance that cut across occupation or duty assignment. We are using these ratings ONLY to evaluate the validity of the personality survey known as NCAPS. This personality measure is being evaluated for future use as a classification tool to better match Sailors to available jobs within the Navy.

**PARTICIPATION:** Completion of this questionnaire is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes. You may discontinue participation at any time without penalty. There is no direct benefit from being in this study; however, taking part may help improve Navy policies, programs, and/or procedures for Navy personnel in the future.

**RISK(S):** The only risk to you is inappropriate disclosure of data you provide. However, NPRST has a number of procedures in place to ensure that the data collected is safe and protected.

**CONFIDENTIALITY:** All responses will be held in confidence by NPRST. Information you provide will be statistically summarized with the responses of others, and will not be attributable to any single individual.

**QUESTIONS:** If you have any questions about this research study, please contact the Project Director at (901) 874-2972. If you have any questions regarding Human Subjects issues, please contact the NPRST Protection of Human Subjects Committee, DSN 882-4994, COM (901) 874-4994 or email nprstirb@navy.mil.

**PLEASE CHECK ONE OF THE FOLLOWING:**

I HAVE READ THE INFORMED CONSENT AND PRIVACY ACT STATEMENT AND I:

- Do not wish to participate in this study.
- Wish to voluntarily participate in this study.
Appendix C

Navy Computer Adaptive Personality Survey Example

Due to the proprietary nature of the NCAPS tool, an exhaustive list of NCAPS items could not be included. For more information concerning the NCAPS, contact Louis Miller, PhD at (901)874-3366.

1) I sometimes become less alert if nothing much is happening around me.

2) I think I am fairly good at noticing things that require attention.
Appendix D

Navy Rating Protocol Example

Due to the proprietary nature of the NRP tool, an exhaustive list of NRP items could not be included. For more information concerning the NRP, contact Louis Miller, PhD at (901)874-3366.

1. Cooperation/Working Well with Others

Interacts with others in a cooperative manner; resolves differences with others with minimal conflict; provides and accepts constructive criticism; uses sensitivity in dealing with persons from diverse backgrounds.

<table>
<thead>
<tr>
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<th>7</th>
</tr>
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<tbody>
<tr>
<td>-Works very smoothly and cooperatively with both supervisors and coworkers.</td>
<td></td>
</tr>
<tr>
<td>-Is an excellent team player.</td>
<td></td>
</tr>
<tr>
<td>-Avoids unnecessary conflict and works well with all types of people.</td>
<td></td>
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<tr>
<td>-Willingly accepts suggestions and guidance from others without being defensive.</td>
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<table>
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<tr>
<th>Meets Standards</th>
<th>5</th>
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</thead>
<tbody>
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<td>-Works reasonably well with supervisors and coworkers</td>
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<tr>
<td>-For the most part, is a good team player, but works better with some types of people than others.</td>
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<tr>
<td>-Is generally receptive to constructive suggestions from others, but may become somewhat defensive when criticized.</td>
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</tr>
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<td>Somewhat Below Standards</td>
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