

Development of a Test Battery to Select Navy Recruiters

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Foreword

The Office of Naval Research (ONR) and N13 funded this effort, under the Program Element number PE0603707N, sponsored by Commander, Navy Recruiting Command. The objective of this research addressed the development of a new screening tool for identifying Sailors with high potential for success in recruiting duty. The authors wish to thank the funding sponsor, the Office of Naval Research, project sponsors, Mr. John Noble and Mr. Don Bohn for their considerable technical and administrative support throughout this project. Special thanks also should be extended to the hundreds of Sailors and production Recruiters whose participation as research subjects in the validation process was critical to the success of this project.

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Abstract

This report describes the development of a new screening tool for identifying Sailors with high potential for success in recruiting duty. In the first phase of the research effort, a predictive validation study was conducted with students at the Recruiting and Retention School in Pensacola, FL. The students were administered a trial predictor battery while at the school, and performance ratings and production data were collected after participants had been assigned to recruiting duty. In the second phase, the trial battery was revised based on the results of the predictive study, and validated against performance ratings and production of experienced field recruiters. Suggestions were made regarding a final scoring key and how the test battery might be used to select Navy personnel for recruiting duty and possibly other special assignment ratings.

Introduction

Navy recruiters face an increasingly difficult recruiting environment characterized by lower youth enlistment propensity and, during the 1990s, a very tight labor market. Over the last several years, these conditions have led the Navy to increase its recruiter force by approximately 500 recruiters to more than 5,000. In order to staff the recruiter force, E-5s and E-6s must be moved from some critically undermanned jobs into recruiting duty. Because recruiters serve as representatives of the Navy to the community and provide the critical manpower supply, it is important for the Navy to make good decisions about which of these E-5/6s will be effective as recruiters.

In response to the critical recruiting situation, the Navy has sponsored Navy Personnel Research, Studies, and Technology (NPRST) to conduct a research and development program to develop recruiter selection and assessment systems to identify sailors who will be effective and productive in the recruiting environment. Personnel Decisions Research Institutes, Inc. (PDRI) was contracted by NPRST to conduct a study to evaluate the empirical validity of a paper-and-pencil predictor battery.

The purpose of the current project was to develop and validate a test battery for the selection of Navy recruiters. The project was carried out in two phases. The first phase involved the validation of several instruments thought to be associated with recruiter performance.

The test battery in the first phase included relevant items from the "Special Assignment Battery" (SAB) developed in the late 1970s and early to mid-1980s by PDRI's Borman and NPRDC's Abrahams (Atwater, Abrahams, & Trent, 1986; Abrahams, Neuman, & Rimland, 1973; Borman, Rosse, & Toquam, 1981; Borman, Rosse, & Toquam, 1979) for the selection of Navy and Marine Corps recruiters. The original SAB consisted of personality, biographical, and vocational interest items. In the current research, a five-factor personality measure and a measure of emotional intelligence were also included in the battery.

The second phase of the project involved revising the initial test battery based on the results from the first phase of the project and validating the revised battery in a different sample of recruiters, using a concurrent validation design.

Procedure/Approach

The validation approach chosen for this project was a criterion-related strategy. This is typically accomplished by obtaining the test scores of job applicants and collecting measures of these same individuals' job performance. Test scores are then related to how well individuals perform on the job. Successful validation of this type provides confirmation that use of the selection measures will, in fact, identify the most qualified candidates for the job. This validation methodology is one of three validation strategies presented in the *Uniform Guidelines on Employee Selection Procedures* (1978, EEOC), the *Standards for Educational and Psychological Testing* (19), and the Society for Industrial/ Organizational Psychology's (SIOP's) *Principles for the Validation and Use of Personnel Selection Procedures* (1987). A predictive strategy was used during the first phase of the project, whereas a concurrent strategy was employed during the second phase. The specifics of the data collection efforts including details of criterion development, predictor selection, and validation of the predictors are provided in the following sections.

Phase I—Predictive Validation Study

Development of Criterion Measures of Recruiter Job Performance

In a validation study, accurate performance measurement is critical for several reasons. First, in order to demonstrate the utility of the tests for selecting qualified candidates, it is necessary to show that they are, in fact, related to job performance. This can only be achieved if comprehensive, reliable, and valid measures of job performance are available.

The goal was to develop criteria that would fully capture the Navy recruiter job performance domain. Specifically, the intent was to develop a set of criterion measures, each with its own strengths, for measuring recruiter performance. Two measures of recruiter job performance were used in the validation study: recruiter rating scales designed to measure typical performance over time, i.e., what each recruiter actually does to perform effectively or ineffectively; and recruiter production, measuring a critical outcome of job performance. Each criterion measure is described below.

Navy Recruiter Performance Rating Scales

As mentioned, performance ratings scales were designed to measure job performance of Navy recruiters across all behavioral performance requirements. Two previous reports describe the original development of these behavior-based scales (Borman, Hough, & Dunnette, 1976) and the recent update of the original scales (Penney, Borman, Hedge, Abrahams, & Drenth, 2001). The scales feature behavioral “anchors,” providing a behavioral description of how individuals at different levels of effectiveness perform on the job. This method has been shown to generate more objective and reliable performance ratings. The eight behavioral dimensions were: (1) Locating and Contacting Qualified Prospects; (2) Gaining and Maintaining Rapport; (3) Obtaining Information from Prospects and Making Good Person-Navy Fits; (4) Salesmanship Skills; (5) Establishing and Maintaining Good Relationships in the Community; (6) Providing Knowledgeable and Accurate Information about the Navy; (7) Administrative Skills; and (8) Supporting Other Recruiters and the Command.

The first four dimensions clearly represent the major steps that recruiters perform in the selling process (i.e., prospecting for candidates, establishing rapport, making appropriate judgments about the fit between the prospect and the Navy, and closing the sale). Recruiters must also initiate, develop, and maintain productive relationships with individuals and agencies in the community in order to build and enhance the Navy's reputation (Dimension 5). Providing accurate information about the Navy (Dimension 6), planning, organizing, and time management skills referring to the recruiter's ability to balance priorities and deadlines, and to manage enlistment processing (Dimension 7), and coordinating with and supporting other recruiters, following orders, and helping or mentoring other recruiters (Dimension 8) are all additional activities important for success in this job.

These behavior-based rating scales were designed to encourage raters to make evaluations as objectively as possible. Specifically, within each performance dimension, statements describing behaviors that reflect very effective, effective, needs improvement, and needs considerable improvement performance anchor these four effectiveness levels on the scales. Raters are asked to compare observed recruiter behavior with the behavioral statements that anchor the different effectiveness levels on each dimension. The Navy Recruiter Performance Rating Scales appear in Appendix A.

In addition, a rater training program was developed to: (1) orient raters to the rating task; (2) familiarize raters with the performance dimensions and how each is defined; (3) train raters to match observed recruiter behavior with the behavioral summary statements to obtain a rating for each dimension; (4) describe common rater errors (e.g., halo) and how to avoid them; and (5) encourage raters to be as accurate as possible when making their ratings. The rater training program was conducted in-person by a PDRI staff member during the rating data collection. A videotape of the rater training program was also prepared and used in one rating data collection site.

Performance Rating Data Collection

We developed a plan to collect performance ratings from both peers and supervisors (Recruiters-in-Charge: RINCs) of recruiters. However, discussions with NPRST and CNRC indicated that peers and RINCs would be unavailable to provide ratings. Therefore, only supervisory ratings from Zone Supervisors were collected. Although Zone Supervisors may not have as much daily interaction with recruiters as RINCs, our discussions with Zone Supervisors indicated that they do monitor individual recruiter performance and should be able to provide accurate ratings.

The plan was to send PDRI staff to train the raters and collect ratings at a single location within each District. This plan was carried out in all but one District. There the point of contact received the ratings materials and instructions for conducting the ratings sessions, showed the training video-tape for the participating raters, collected the performance ratings, and mailed the ratings back to PDRI. Table 1 shows the number of ratings collected and the method used at each site. Performance ratings for 134 recruiters were provided by 41 supervisor raters.

Table 1
Rating scale data collection by site

District	Ratees	Raters	Criterion collection
Atlanta, GA	30	9	In-person
Dallas, TX	31	7	In-person
Los Angeles, CA	33	9	Video mail-out
Nashville, TN	17	9	In-person
Richmond, VA	23	7	In-person
Total	134	41	

In addition, we asked raters how long they had worked with the recruiter(s) they were evaluating. The mean number of months raters had worked with recruiters was 5.75. Although this is a fairly short period of time, it is not surprising given that the recruiters in the sample began recruiter training at the Navy Orientation Recruiting Unit (NORU) between July 2001 and November 2001. Interviews with recruiters indicated that raters who had supervised recruiters for less than two months likely had insufficient time to observe and accurately evaluate their performance and these rater x ratee combinations were removed from further analyses. This resulted in only 10 fewer ratings included in the analyses (N = 124).

Tables 2 and 3 illustrate the distribution of supervisor ratings across the 10-point rating scale. There is a low, but noteworthy percentage of ratings at the lower, ineffective end of the scale. Most of the ratings fall in the 5–8 range, and there is reasonable variability in the ratings, suggesting that supervisors were not inflating their ratings and were differentiating between the more and less effective recruiters. Table 4 shows the means and standard deviations of rating scores across recruiters for each dimension.

Table 2
Number and percentage of supervisor ratings at each scale point

Rating Scale Point (1=Lowest, 10=Highest)	Number of Ratings ^a	Percentage of Ratings
1	6	0.54
2	37	3.32
3	73	6.54
4	114	10.22
5	186	16.67
6	223	19.98
7	231	20.70
8	135	12.10
9	89	7.97
10	22	1.97

^aTotal number of supervisor ratings across all eight dimensions and the overall performance dimension.

Table 3
Mean and standard deviations for mean ratings on each dimension

Rating Dimension (N = 124)	Mean	Standard Deviation
Locating and Contacting Qualified Prospects	5.38	1.90
Gaining and Maintaining Rapport	6.37	1.95
Obtaining Information from Prospects	5.55	1.67
Salesmanship Skills	5.37	1.84
Establishing and Maintaining Good Relationships in the Community	6.62	1.81
Providing Knowledgeable and Accurate Information about the Navy	6.38	1.64
Administrative Skills	5.79	1.96
Supporting other Recruiters and the Command	6.72	1.92
Overall Performance	6.18	1.71

Table 4
Mean correlations of dimensions within and between factors

	Selling Skills Factor	Human Relations Skills Factor	Organizing Skills Factor
Selling Skills Factor	.60		
Human Relations Skills Factor	.44	.53	
Organizing Skills Factor	.35	.42	-na-

Note: The Organizing Skills Factor had only one dimension so within factor mean correlation could not be computed.

Factor Analysis of the Ratings

To examine the underlying structure of the eight rating scale dimensions, we conducted a principal factors analysis with a varimax rotation on the supervisor ratings. Results of this analysis suggested that a one-factor solution provided the best description of the data. However, work we have done in the past with Navy and Army recruiters has shown that a three-factor system nicely summarizes the recruiter performance domain. These three factors are Selling Skills, Human Relations Skills, and Organizing Skills.

Past research has shown that the first four dimensions, Locating and Contacting Qualified Prospects, Gaining and Maintaining Rapport, Obtaining Information from Prospects and Making Good Person-Army Fits, and Salesmanship Skills, comprise the Selling Skills Factor 1. The fifth and eighth dimensions, Establishing and Maintaining Good Relationships in the Community and Supporting Other Recruiters and the Command, have loaded on the Human Relations Skills factor. The seventh dimension, Administrative Skills, has loaded its own factor and the sixth dimension, Providing Knowledgeable and Accurate Information about The Navy, has not loaded cleanly on any of the three factors.

Although the initial factor analysis that was conducted did not support this three factor solution, we decided to examine the rating data for evidence of convergent and discriminant validity for the three factors. Specifically, we computed the mean correlations of ratings on dimensions within the hypothesized three factors versus the mean correlations between dimension ratings on different factors. The analysis provided some indication of convergent and discriminant validity (see Table 4). That is, we found that the correlations for dimensions within a factor were higher than the correlations for dimensions between factors.

Based on this analysis and because the three rating factors allow for a more detailed interpretation of the data than a single overall performance factor, we developed three rating scale composite scores for each recruiter. The composites were computed by unit-weighting the standardized scores for ratings on each of the dimensions loading on that factor. Thus, the performance ratings capture typical recruiter performance over time on three factors that appear to represent in summary form all of the important performance requirements of the recruiter job.

Recruiter Production

Typically, production measures focus on the number of recruits or contracts signed in a specified time period, for example, number of recruits signed per month. Production measures are inherently appealing as indicators of recruiter performance. Not only are they "bottom-line" measures, but also they are apparently objective, and they are certainly quantifiable and readily available. Unfortunately, their usefulness as a recruiter performance criterion is limited in several ways.

First, a recruiter's production may be influenced by territorial or situational factors that are beyond the recruiter's control. A number of researchers have attempted to identify and examine the effects of territorial factors that influence production. In fact, Borman, Rosse, and Toquam (1982) reviewed many of these studies. The primary finding was that territorial influences can be shown to account for a considerable amount of variance in recruiter production. Thus, one conclusion to be drawn from this review is that we might adjust the individual production scores of recruiters according to "scores" for a territory on such environmental variables as propensity for youth to enlist, military-civilian pay ratio, and proportion of the population that is military, or retired military.

However, we have argued (Borman et al., 1982; Borman et al., 2001) that this strategy for correcting production data according to territorial influences is inferior to simply correcting these data using the mean production levels for the target territories (e.g., Districts). This is because employing a territorial average actually ensures that all environmental factors leading to territorial differences are indeed being accounted for. That is, using territorial averages to make these corrections captures the influence of all relevant environmental factors on production.

A second issue regarding the deficiency of raw production indices and the notion of correcting production scores with territorial averages is the size of the territory to employ in making the score adjustments. Using relatively large territories such as Regions has the advantage of providing more stable means, with relatively small effects due to uneven recruiter talent across the Regions. However, a disadvantage with Regions is that the recruiting environment may vary in difficulty across different sections of the Region, making a single adjustment for all recruiters in the Regions potentially misleading. The advantages and disadvantages of a smaller territory, such as at the District level, are the opposite. The homogeneity in the environmental factors is likely to be high, but the District means will be less stable and more highly influenced by uneven recruiter talent in different Districts.

One last issue with adjusting production data using territorial averages is how long a time period to employ when computing average production scores. In general, longer (i.e., more months) is better, because the stability of the means is likely to be higher when several months' data are averaged. However, because recruiters leave active recruiting status and new recruiters join the recruiting force, the greater the number of months used for computation of means, the larger the missing data problem, with recruiters being on active recruiting duty status for only part of the period.

In sum, several issues must be considered to improve the usefulness of production averages as an indicator of recruiter effectiveness. Addressing each of these concerns can greatly improve the utility of production as an indicator of recruiter effectiveness. The current study took these factors into account in the development of the production index. The specific steps taken are described in the next section.

Production Index for the Predictive Validation Study

CNRC maintains a database tracking the monthly production of all Navy recruiters. For the first phase of the project, we obtained monthly information from July 2001 through June 2002 regarding the gross number of recruits signed. Descriptive statistics for production in CNRC and the test sample are presented in Table 5.

Table 5
Average monthly uncorrected (raw) production: descriptive statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Validation Sample	572	0.11	3.00	1.16	0.58
All of CNRC	4863	0.08	5.17	1.25	0.74

Although we obtained data for 12 months, not all recruiters were "on-production" for all 12 months. That is, some recruiters did not have production data for all 12 months because they: (1) began active recruiting duty after July 2001; (2) took temporary leave during the 12-month period; or (3) were temporarily or permanently removed from active recruiting duty for some other reason. On average, recruiters in our validation sample (N = 572) had 9.8 months of production data.

In order to develop an appropriate production index, the issues discussed earlier in the report were addressed. First, we took steps to correct for situational and environmental factors that, as we mentioned previously, may impact recruiter production. One problem that can affect a recruiter's production is the months in which they are recruiting. For example, signing four individuals in June may not require the same skill as signing four individuals in January due to the influx of high school graduates into the market during the early summer months. In order to correct for seasonal differences that may make recruiting in one month more difficult than another, production values were first standardized within each month before they were combined to form a monthly standardized average.

In addition, we accounted for environmental factors employing the strategy discussed previously by using territorial averages to correct production scores. First, we created production scores for each recruiter standardized within District and Region in order to determine the level that would be most appropriate. Next, we examined the reliabilities of each standardized production score. The reliabilities for the Region- and District-corrected scores were moderately high ($r = .80$ and $.79$, respectively) for an average of 9.8 months. Overall, the Region -level correction seemed to be preferable because of its leading to slightly higher reliability.

The last issue addressed regarding the production data was the number of months to employ in computing the averages. As stated previously, on average, we had 9.8 months of production data for the recruiters in our sample. Thus, the final production score for some recruiters was based on as few as 3–4 months of data, whereas others had as many as 12 months. Because the stability of the production score is likely to be higher when more months' data are averaged, including scores based on only a few months of data may attenuate the observed relationships with the predictors, as well as other criteria. We therefore examined the reliability of production scores based on varying number of months' data (see Table 6) to determine an appropriate cut-off. As expected, the reliability of production scores increases as the number of months averaged increases. A reasonable cut-off appears to be at four months or more data. The reliability of the production data drops fairly substantially with fewer months data. Based on this finding and the number of recruiters with different numbers of months data (e.g., many more recruiters had 4 or 5 months data compared to 11 or 12 months data), we decided to screen out those individuals with less than four months of production data.

Table 6
Reliabilities of production indices using different time intervals

Time Length	Reliability
12 months	.80
11 months	.80
10 months	.80
9 months	.80
8 months	.79
7 months	.78
6 months	.77
5 months	.75
4 months	.72
3 months	.68
2 months	.62

Correlations Between the Criterion Measures

Table 7 depicts the relationships between the three performance rating factors and the Region-adjusted production index. Production correlates highest with the Selling Skills rating factor (.61), the factor that most closely represents the skill, effort, and ability of recruiters to enlist prospects. Production correlates less highly with the Human Relations Skills (.33) and Organizing Skills (.24) rating factors. These two factors represent activities that are more likely to have a long-term impact on recruiter performance rather than having an immediate impact on monthly production. Accordingly, this pattern of relations provides construct validity evidence for both the ratings and production index.

Table 7
Correlations between criterion measures

Criterion Measure (N=123)	Production	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance
Selling Skills	.61**				
Human Relations Skills	.33**	.59**			
Organizing Skills	.23*	.40**	.49**		

* < .05

** p < .01

Predictor Measures and Data Collection

Four predictor instruments measuring personality, vocational interests, and emotional intelligence were used in the validation study. Descriptions of each are provided below.

Special Assignment Battery (SAB)

As stated previously, the Special Assignment Battery (SAB) was developed for the selection of Navy and Marine Corps recruiters in the late 1970s and early to mid 1980s. The SAB consists of two subtests. The first subtest, the Work Style Inventory (WSI), is a self-report measure of personality. The WSI contains 179 items and is scored on 5-point Likert scale ranging from "Definitely false" to "Definitely true." The five personality traits assessed by the WSI are Ambition (e.g., "I often set higher standards for myself than others set for themselves," "Most people would agree that I am an overachiever"), Conscientiousness (e.g., "I make sure my daily life is planned and organized," "I obey a rule even if everybody around me is not obeying it"), Emotional Stability (e.g., "It seems like I am always trying to turn my life around," "There are times when I feel I am no good to anyone," both negatively scored), Extroversion (e.g., "When I talk to people they

get energized," "I find it easy to start up a conversation with strangers"), and Leadership (e.g., "I enjoy persuading others to accept my point of view," "I enjoy or would enjoy having power over others").

The second subtest, the Vocational Interest Career Examination (VOICE), assesses vocational interests. Respondents are presented with a list of 250 jobs, work tasks, and leisure activities and asked to indicate whether they would like, dislike, or are indifferent to performing or learning more about those activities.

NEO

The NEO is a measure of the five major domains of personality (i.e., the Big 5; Goldberg, 1993) and important traits or facets that define each domain. The NEO long-form is a self-report, 240-item measure. The NEO assesses the facets of Neuroticism (adjustment or emotional stability), Extroversion (sociability, assertiveness), Openness (active imagination, aesthetic sensitivity, attentiveness to inner feelings), Agreeableness (interpersonal tendencies such as altruism, sympathy to others), and Conscientiousness (impulse control, and planning and organizing). The scales were developed and refined by a combination of rational and factor analytic methods and have been the subject of intensive research conducted over 15 years on both clinical and normal adult samples. Several of the Big Five dimensions have been linked with sales performance (Barrick, Mount & Strauss, 1993; Mount & Barrick, 1998; Vinchur, Schippmann, Switzer, & Roth, 1998), and other research has provided criterion-related validity evidence for the NEO in sales positions (e.g., Stewart, 1996).

EQ-I

The BarOn EQ-I is a measure of emotional intelligence. Emotional intelligence is defined as an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures. The BarOn EQ-I measures 15 conceptual components of emotional intelligence. These are: Emotional Self-Awareness, Assertiveness, Self-Regard, Self-Actualization, Independence, Empathy, Interpersonal Relationship, Social Responsibility, Problem Solving, Reality Testing, Flexibility, Stress Tolerance, Impulse Control, Happiness, and Optimism. The measure consists of 133 items.

Predictor Data Collection

Predictor test data were collected from 623 students during their first week of recruiter training at the Navy Orientation Recruiting Unit (NORU) in Pensacola, FL. Test packets were assembled with the predictor instruments, answer sheets, and instructions, and were mailed to NORU. The packages included: (1) a participant information sheet (i.e., demographic information); (2) the test instruments; and (3) answer sheets. The participant information sheet can be found in Appendix B.

One individual at NORU was assigned to proctor the predictor test administration. This person was responsible for assembling the test packets, overseeing the administration of the test battery, and mailing the completed answer sheets to PDRI. The proctor was given a script to be read at the beginning of each administration in order to standardize the testing process. The proctor script is in Appendix C. At the end of August 2001, administration of the EQ-I to students at NORU was ceased at the request of NORU officials in order to reduce the total length of the battery. As a result, the EQ-I was only administered to 199 students and the number of students for whom rating data were available was only 33. Consequently, the sample size for the EQ-I was too low to complete criterion-related validation analyses.

Data Screening

After receiving the data, PDRI screened them for inconsistent or careless responses. The WSI contains two items designed to detect invalid responses. These items instructed respondents to choose a specific response option. For example, "This item for keypunch purposes only. Please select response choice "a"." Using these items to screen for invalid responses, 36 participants were flagged and subsequently removed from the database and were not included in any analyses.

Additionally, we visually inspected each test to identify respondents who appeared to answer in a careless or intentionally distorted fashion. When inspecting each test, we flagged those that met one of the following criteria: (1) more than 10 responses were missing; (2) a subject provided identical responses to 25 questions or more in a row; and (3) the pattern of responding clearly indicated the subject was not reading questions (e.g., zigzag answer pattern, etc.).

Only three of the 623 cases were flagged as a result of this screening process. In total, 39 of the tests (6%) were judged to have invalid response patterns. These tests were subsequently removed from the database and not included in any of the analyses.

Predictor Descriptive Data

After the data were screened, they were entered manually or electronically scanned into computerized data files. All data were combined into a single file using SPSS statistical software. Preliminary descriptive analyses were performed (e.g., range, mean, standard deviation analyses) as a final check to identify data entry errors, missing responses, or other possible evidence of respondent response sets. Item level data for the NEO and WSI were used to create scale and facet scores. The descriptive statistics for the scale scores are presented in Tables 8, 9, and 10. The VOICE section of the SAB did not have scales. Subsequent analyses were performed at the item level.

Table 8
NEO descriptive statistics

Scale	N	Mean	Standard Deviation
Neuroticism	583	73.86	19.86
Extroversion	583	117.87	17.86
Openness	583	106.91	13.41
Agreeableness	583	111.42	14.35
Conscientiousness	583	124.36	18.14

Table 9
WSI descriptive statistics

Scale	N	Mean	Standard Deviation
Ambition	584	66.47	7.41
Conscientiousness	584	102.61	12.90
Extroversion	584	119.76	17.09
Leadership	584	46.91	6.88
Emotional Stability	584	49.03	9.81

Table 10
EQI descriptive statistics

Scale	N	Mean	Standard Deviation
Assertiveness	199	102.28	13.59
Emotional Self-Awareness	199	98.61	13.70
Empathy	199	86.85	17.44
Flexibility	199	99.93	15.55
Happiness	199	96.09	17.78
Impulse Control	199	99.51	13.99
Independence	199	99.59	15.31
Interpersonal Relationship	199	93.67	15.51
Negative Impression	199	106.01	22.56

Table 10
EQI descriptive statistics

Scale	N	Mean	Standard Deviation
Optimism	199	93.05	14.97
Positive Impression	199	99.90	18.23
Problem Solving	199	96.28	14.68
Reality Testing	199	94.30	17.20
Self-Actualization	199	92.75	15.98
Self-Regard	199	98.56	13.63
Social Responsibility	199	87.67	18.07
Stress Tolerance	199	99.81	14.11
Total Score	199	94.04	17.63

Construct validity of the five WSI factors was demonstrated by their correlations with the five NEO factors (see Table 11). The SAB Emotional Stability factor was correlated $-.55$ with the NEO Neuroticism factor. The SAB and NEO Extroversion factors and Conscientiousness factors were correlated $.57$ and $.53$, respectively.

Table 11
Correlations between NEO and WSI factors

WSI Factors	NEO Factors				
	Neuroticism	Extroversion	Openness	Agreeableness	Conscientiousness
Ambition	$-.16^{**}$	$.28^{**}$	$.03$	$.03$	$.38^{**}$
Conscientiousness	$-.14^*$	$.18^{**}$	$-.09^*$	$.31^{**}$	$.53^{**}$
Extroversion	$-.27^{**}$	$.57^{**}$	$.22^{**}$	$.05$	$.23^{**}$
Leadership	$-.07$	$.28^{**}$	$.16^{**}$	$-.32^{**}$	$.03$
Emotional Stability	$-.55^{**}$	$.41^{**}$	$.20^{**}$	$.16^{**}$	$.43^{**}$

N=583

* $p < .05$

** $p < .01$

Validation Results

This section presents the observed criterion-related validities for the NEO and WSI. Recall that the EQ-I was not included in these analyses because of low Ns. To examine the validity of these measures, we correlated the scale scores obtained from each measure with two criterion measures: (1) the composite criterion ratings on the three unit weighted composites; and (2) production (production corrected within Region). Results of this analysis are presented in Tables 12 and 13.

Table 12
Correlations between WSI factors and criteria

	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance	Production
Ambition	.05	.02	-.09	.07	.10
Conscientiousness	-.02	-.09	.02	-.04	.07
Extroversion	.18*	.21*	-.07	.20*	.13**
Leadership	.02	.02	-.13	-.01	.05
Emotional Stability	.27**	.26**	.14	.27**	.10*

N = 119 for Rating Criteria

N = 535 for Production

Table 13
Correlations between NEO factors and criteria

	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance	Production
Neuroticism	-.13	-.21*	-.08	-.14	-.04
Extroversion	.16	.14	.05	.14	.09*
Openness	.00	.06	.09	-.02	-.01
Agreeableness	-.07	.01	.04	-.08	.01
Conscientiousness	.09	.11	.10	.03	.04

N = 119 for Rating Criteria

N = 535 for Production

* p < .05

** p < .05

In general, the WSI factors were more valid against the performance rating and production criteria than the NEO factors. The WSI Extroversion factor was valid against Selling Skills (.18), Human Relations Skills (.21), Overall Performance (.20) and production (.13). The NEO Extroversion factor was only valid against production (.09). Similarly, the WSI Emotional Stability factor was valid against Selling Skills (.27), Human Relations Skills (.26), Overall Performance (.27) and production (.10). The NEO Neuroticism factor was only valid against Human Relations Skills (-.21).

As mentioned, an item-level empirical validation approach was used to evaluate the VOICE. There were a total of 250 VOICE items and 5 criteria, and thus a total of 1,250 validity estimates. The validity "hit-rate" for the VOICE items at the .05 level was fairly low (3.76%). Only 47 items had a significant correlation with at least one of the criteria. This was somewhat surprising given that a meta-analysis of sales performance predictors (Vinchur et al., 1998) reported that vocational interest measures are reasonably valid predictors of sales performance. Our conclusion was that the VOICE was not a valid predictor of job performance, at least in this sample of recruiters.

Phase II—Concurrent Validation Study

Revising the Test Battery

The long-term goal of the Navy's work in recruiter selection is to create a valid selection battery that can be easily administered in a relatively short amount of time. The first task of the second phase of the project, therefore, was to revise the initial test battery to maximize criterion-related validity and reduce the length of the battery so that it can be administered in approximately 30 minutes. Several factors were taken into consideration in choosing the items for a revised battery. First, we considered the validity of each individual instrument that comprised the selection battery. Next, we examined the validities of individual items and investigated the factor structure of the valid items. Finally, additional items from the battery were chosen based on content similarity to the valid factors.

As noted previously, of the two personality measures in the battery, the WSI factors were more valid against the rating and production criteria than the NEO factors. Because of the higher validities achieved with the WSI personality factors, the NEO was excluded from the revised battery. Additionally, because the item-level validity hit-rate for the VOICE items was quite low, the VOICE was also eliminated from the revised battery. Thus, the WSI became the focus of the revised battery.

A two-step approach was used to identify WSI items for inclusion in the revised battery. First, items were selected based on their validity against the performance rating and production criteria. Sixty-seven items were identified with a validity above .08 against production or above .14 against the rating criteria and were included in the revised battery. In addition to selecting valid items, other WSI items were examined for inclusion in the battery based on content. To accomplish this, a factor analysis was conducted on the 67 relatively valid items to obtain a summary description of their

underlying structure. The factor analysis yielded four factors (Extroversion, Emotional Stability, Leadership/Ambition, and Conscientiousness). The inference from the factor analysis results is that these four factors reflect the underlying content of the valid items.

Finally, PDRI staff members appraised the content of the remaining WSI items (items with non-significant correlations with the criteria) relative to the content of the items within each of the valid factors. Items whose content was judged to be similar to the valid factors and whose validities were reasonably close to significance were included in the revised battery. Based on these criteria, 40 additional items were included, along with two items to detect invalid responses, for a total of 109 items. The revised battery, named the Recruiter Assessment Battery (RAB), contains five scales: (a) Ambition; (b) Conscientiousness; (c) Extroversion; (d) Leadership; and (e) Emotional Stability. A description of the scale definitions can be found in Appendix D.

Data Collection

In order to obtain a large enough sample of current recruiters in the concurrent validation effort, an email was sent by the Assistant Deputy Chief of Naval Operations (Manpower and Personnel), Code N1B, to all Navy Recruiting Districts (NRDs) asking for NRDs to volunteer to participate in the second phase of the project during their annual training and awards banquets. Three NRDs volunteered to participate in the study (Montgomery, Omaha, and San Antonio).

At each of these three NRDs, PDRI and NPRST staff trained the Zone Supervisor, RINC, and recruiter peer raters, collected performance rating data, and administered the RAB to all recruiters. All participants, including recruiters, RINCs, and Zone Supervisors, were given a personalized set of materials that included: (1) a participant information sheet (i.e., demographic information); (2) an informed consent form; (3) the recruiter performance rating scales with instructions; and (4) a performance rating sheet with names and code numbers of the individuals they would be rating. In order to protect the confidentiality of the ratings, raters were instructed to tear off the section of the rating form with the names after they had completed their ratings. Copies of these materials can be found in Appendices E–G. Additionally, all recruiters were given the RAB and an answer sheet. The code numbers for each recruiter, placed on the rating form and the RAB rating sheet, allowed us to match test and rating data.

Criterion Data

Performance Rating Scale Data

We attempted to collect ratings from two supervisors and at least two peers for each recruiter in the study. Table 14 shows the number of ratings collected at each site. Performance ratings for 278 recruiters were provided by 234 peer, 69 RINC, and 21 Zone Supervisor raters, for a total of 1087 rater-ratee pairs. Table 15 shows the number of supervisor and peer raters for each recruiter.

Table 14
Rating scale data collection by site

NRD	Raters	Ratees
Montgomery	122	104
Omaha	66	56
San Antonio	136	118
Total	324	278

Table 15
Number of supervisor and peer raters

Number of Supervisor Raters per Ratee		Number of Peer Raters per Ratee		Total Number of Raters per Ratee	
	N		N		N
0	6	0	42	1	17
1	64	1	68	2	45
2	201	2	57	3	60
3	7	3	61	4	51
4	1	4	30	5	68
		5	19	6	14
		6	1	7	21
		7	1	8	2
				9	1

Mean number of supervisor raters per ratee = 1.76
Mean number of peer raters per ratee = 2.13
Mean total number of raters per ratee = 3.90

Only raters who had worked with recruiters for at least 2 months were included in the analyses. This resulted in only 93 (8.6%) fewer rater-ratee pairs. The mean number of months raters had worked with recruiters was 9.2 months for peer raters and 10.6 months for supervisor raters.

Rating scores were created for each recruiter by computing the mean rating, over all raters, for each dimension. Table 16 shows the means and standard deviations of these combined rating scores for each dimension.

Table 16
Mean and standard deviations for combined ratings on each dimension

Rating Dimension	Mean ^a	Standard Deviation
Locating and Contacting Qualified Prospects	6.24	1.50
Gaining and Maintaining Rapport	6.86	1.39
Obtaining Information from Prospects and Making Good Person-Navy Fits	6.42	1.31
Salesmanship Skills	6.37	1.44
Establishing and Maintaining Good Relationships in the Community	6.46	1.32
Providing Knowledgeable and Accurate Information about the Navy	7.01	1.17
Administrative Skills	6.06	1.45
Supporting Other Recruiters and the Command	6.83	1.48
Overall Performance	6.60	1.42

^aN= 268

Table 17 presents the interrater reliabilities for the supervisor and peer ratings combined. Both rating sources should provide important performance information because of their unique perspectives, and the reliabilities for both sources taken together argues for the use of an aggregated supervisor/peer rating criterion.

Table 17
Interrater reliabilities for combined supervisor, peer ratings^a

Rating Dimension	Combined Peer/Supervisor Reliabilities ^b
Locating and Contacting Qualified Prospects	.81
Gaining and Maintaining Rapport	.69
Obtaining Information from Prospects and Making Good Person-Navy Fits	.65
Salesmanship Skills	.75
Establishing and Maintaining Good Relationships in the Community	.58
Providing Knowledgeable and Accurate Information About the Navy	.60
Administrative Skills	.61
Supporting Other Recruiters and the Command	.59
Overall Performance	.80

^aReliabilities are intraclass correlation coefficients (ICC 1,k)(Shrout & Fleiss, 1979).

^bN = 231 k = 3.90

As in the predictive validation study, we combined the rating dimensions into a 3-category structure for the validation. Table 18 presents the means, standard deviations, and interrater reliabilities of these three composites.

Table 18
Means, standard deviations, and interrater reliabilities for rating composites

Rating Dimension	Means	Standard Deviation	Combined Peer/Supervisor Reliabilities
Selling Skills	26.04	5.06	.81
Human Relations Skills	13.29	2.52	.64
Administrative Skills	6.10	1.48	.60
Overall Performance Composite	52.49	8.81	.80

Production Index for the Concurrent Validation Study

As with the predictive validation sample, mean monthly number of recruit contracts signed served as the production criterion. Production data were drawn from CNRC for the time period January 2000 through December 2002. Descriptive statistics for production in CNRC and for the concurrent validation sample are presented in Table 19.

Table 19
Average monthly uncorrected (raw) production: Descriptive statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Validation Sample	254	0.11	2.80	1.17	0.48
All of CNRC	7523	0.03	4.63	1.02	0.60

As we did previously, reliabilities were computed for 2-12 months data, and these results are depicted in Table 20. Again, it seemed reasonable to screen out recruiters in the sample with fewer than four months of production data. This resulted in 14 additional recruiters dropped from the sample.

Table 20
Reliabilities of production indices using different time intervals

Time Length	Reliability
12 months	.86
11 months	.86
10 months	.85
9 months	.85
8 months	.83
7 months	.81
6 months	.80
5 months	.75
4 months	.72
3 months	.66
2 months	.61

Correlations between the Criterion Measures

Table 21 depicts the relationships between the three performance rating factors and the Region-adjusted production index. Production again correlates highest with the Selling Skills rating factor (.52), the factor that most closely represents the skill, effort, and ability of recruiters to enlist prospects. Production correlates less highly with the Human Relations Skills (.28) and Organizing Skills (.10) rating factors. As in the predictive validation sample, this pattern of relations provides construct validity evidence for both the ratings and production index.

Table 21
Correlations between criterion measures

Criterion Measure	Production	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance
Selling Skills	.52**				
Human Relations Skills	.28**	.74**			
Organizing Skills	.10	.44**	.49**	-na-	

N= 197

* < .05

* p < .01

Predictor Data

The RAB was administered to 254 recruiters in the 3 NRDs that participated in the concurrent validation study. In order to detect random or careless responding by participants, the data were screened using two validity check items, identical to what was used in the WSI, and by visual inspection of the answer sheets. A total of 30 tests (11.8%) was flagged for invalid responses and were subsequently removed from the database. Descriptive statistics for each of the RAB factors are displayed in Table 22 and 23.

Table 22
RAB descriptive statistics

Scale	N	Mean	Standard Deviation
Ambition	224	40.05	5.64
Conscientiousness	224	57.25	8.84
Extroversion	224	99.69	16.80
Leadership	224	19.28	3.98
Emotional Stability	224	50.87	5.84

Concurrent Validation Results

For this study, similar to the results of the predictive validation study, Extroversion was significantly correlated with Selling Skills (.21), Human Relations Skills (.20), Overall Performance (.20), and Production (.16). Ambition was valid against Selling Skills (.22), Human Relations Skills (.14), and Overall Performance (.20). Conscientiousness was only valid against Organizing Skills (.18) and Emotional Stability was only valid against production (.19). The Leadership factor was not significantly related to any of the criteria (see Table 23).

Table 23
Correlations between RAB factors and criteria

	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance	Production
Ambition	.22**	.14*	-.01	.20**	.13
Conscientiousness	.03	.04	.18*	.06	.01
Extroversion	.21**	.20**	-.08	.20**	.16*
Leadership	.09	.10	-.02	.09	.12
Emotional Stability	.13	.12	-.02	.12	.19**

*p<.05, **p<.01

N = 199 for Rating Criteria

N = 200 for Production

Development of Interim Final Scoring Key

To develop a scoring key based on the validation research accomplished here *and* to estimate the likely validity of that key, we completed the following additional steps: (1) used the item-level concurrent validities to select items for the scoring key; (2) formed a composite of those items; (3) cross-validated the composite in the predictive validation sample; and (4) developed an interim final key by including primarily items with good validities in the predictive sample. The rationale for this approach was, first that the best estimates of the likely operational validities come from the predictive study. In that study, the predictors were administered before the recruiter trainees had any recruiting experience, similar to what would be the case in their operational use.

Accordingly, we wanted to establish a “placeholder” key for the concurrent study, but then evaluate the cross-validity of that key using the predictive sample. This should provide a relatively conservative estimate of the RAB’s overall validity.

The second part of the rationale for this approach is that although the Extroversion and Emotional Stability scales had reasonably consistent validities across the two studies, arguing perhaps for using a composite of those two scales as the key, there were

several of those scales' items that showed poor validities *and* several Ambition and Leadership items that had very good validities. Thus, a combination of the reasonably large sample sizes providing good estimates of item level validities and the fact that several items from two of the less valid scales had promising validities argued for this strategy.

Finally, the third part of the rationale is that the items for the interim final key going forward were mostly items from the placeholder key used to provide validity estimates for the entire RAB. However, a few of the placeholder key items were dropped if they had very poor cross-validities in the predictive sample. Also, a few items were added to the key if they were not part of the placeholder key derived from the concurrent study, but had very good validity in the predictive sample, especially against production, Sales Skills, and Overall Performance.

Validation results for the item-level analyses appear in Tables 24 and 25. As expected, validities for the concurrent sample, where the items were selected based especially on their correlations with production, Selling Skills, and Overall Performance, are as high as .28. However, cross-validation results in the predictive sample are also promising, reaching .21 for production and .26 and .27, respectively, against the Sales Skills and Overall Performance rating criteria.

Table 24
RAB score descriptive statistics

Scale	N	Mean	Standard Deviation
RAB Score (in CV)	224	122.72	16.38
RAB Score (in PV)	537	138.33	13.16

Table 25
Correlations between RAB score and criteria

	Selling Skills	Human Relations Skills	Organizing Skills	Overall Performance	Production
RAB Score (in CV)	.28**	.21**	-.02	.25**	.28**
RAB Score (in PV)	.26**	.26**	-.03	.27**	.21**

* p < .05

** p < .01

for CV N = 200 for production; 199 for ratings

for PV N = 537 for production; 127 for ratings

As mentioned, the final step in identifying the RAB items for the key was to drop from the placeholder key (the key based on the concurrent validation results) items that failed to cross-validate in the predictive sample and add items that were not part of the placeholder key if they were close to qualifying for the key and showed high validities in the predictive sample. This interim final key contains 51 items from the Extroversion, Emotional Stability, Ambition, Leadership, and Conscientiousness scales.

Recommendations for Operational Use

Although we have demonstrated reasonably good validity for the RAB, there is certainly a possibility that Sailors taking the test in an operational setting where the scores will be used to select or screen out individuals for recruiting duty could slant their response (i.e., fake good *or* fake bad). Warnings about faking and persuasive messages encouraging honest responses may help (e.g., Hough & Furnham, 2003), but test takers determined to slant their responses may still be able to do so.

One strategy that would likely address this problem is to administer the RAB routinely to all Petty Officers soon after their first reenlistment. Test scores could then be placed in a file and later used to encourage or discourage coming into recruiting. This strategy might also be expanded to include other special assignment ratings such as drill instructor. The RAB could then be used as more of a classification or career counseling tool than a selection tool.

References

- Abrahams, N. M., Neuman, L., & Rimland, B. (1973). *Preliminary validation of an interest inventory for selection of Navy recruiters* (NPTRL Research Memorandum SRM-73-3). San Diego, CA: Naval Personnel and Training Research Laboratory.
- Society for Industrial-Organizational Psychology, American Psychological Association. (1987). *Principles for the validation and use of personnel selection procedures*. College Park, MD: Author.
- Atwater, D. C., Abrahams, N. M., & Trent, T. T. (1986). *Validation of the Marine Corps Special Assignment Battery (SAB)* (NPRDC Technical Report 86-18). San Diego, CA: Navy Personnel Research and Development Center.
- Barrick, M. R., Mount, M. K., & Strauss, J. P. (1993). Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *Journal of Applied Psychology, 78*(5), 715-722.
- Borman, W. C., Horgen, K. E., Birkeland, S. A., Penney, L. M., Sutton, M. J., & Mills, L. J. (2001). *Development of Recruiter Assessment Measures for the U.S. Army* (Institute Report #382). Tampa, FL: Personnel Decisions Research Institutes, Inc.
- Borman, W., Hough, L. & Dunnette, M. (1976). *Development of behaviorally based rating scales for evaluating the performance of US Navy recruiters* (NPRDC Technical Report 76-31). San Diego, CA: Navy Personnel Research and Development Center.
- Borman, W., Rosse, R. L., & Toquam, J. (1979). *An inventory battery to predict Navy and Marine Corps recruiter performance: Development and validation* (NPRDC Technical Report 79-17). San Diego, CA: Navy Personnel Research and Development Center.
- Borman, W., Rosse, R. L., & Toquam, J. (1981). *Development and validation of a recruiter selection battery* (NPRDC Technical Report 81-20). San Diego, CA: Navy Personnel Research and Development Center.
- Borman, W. C., Rosse, R. L., & Toquam, J. L. (1982). *The impact of environmental factors and considerations of recruit quality on Navy recruiter production* (Institute Report #78). Minneapolis, MN: Personnel Decisions Research Institutes.
- Goldberg, L. R. (1993) . The structure of phenotypic personality traits. *American Psychologist, 48*, 26-34.
- Hough, L. M., & Furnham, A. (2003). Use of personality variables in work settings. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Industrial and organizational psychology*. Volume 12 in I. B. Weiner (Editor-in-Chief), *Handbook of psychology*. New York: Wiley.
- Mount, M. K., & Barrick, M. R. (1998). Five reasons why the "Big Five" article has been frequently cited. *Personnel Psychology, 51*(4), 849-857.

- Penney, L. M., Borman, W. C., Hedge, J. W., Abrahams, N. T., & Drenth, D. J. (2001). *Development of recruiter and recruiter-in-charge (RINC) performance criteria* (Technical Report 381). Tampa, FL: Personnel Decisions Research Institutes.
- Shrout, P. E., and Fleiss, J. L. (1979). Intraclass correlation: uses in assessing rater reliability. *Psychological Bulletin*, *86*, 420-428.
- Stewart, G. L. (1996). Reward structure as a moderator of the relationship between extraversion and sales performance. *Journal of Applied Psychology*, *81*(6), 619-627
- Vinchur, A. J., Schippmann, J. S., Switzer, F. S., & Roth, P. L. (1998). A meta-analytic review of predictors of job performance for salespeople. *Journal of Applied Psychology*, *83*(4) 586-597.

**Appendix A:
Navy Recruiter Performance Rating Scales**

Navy Recruiter Performance Rating Scales

A. Locating And Contacting Qualified Prospects

Contacting large numbers of persons likely to join the Navy; skillfully using available recruiting aids to get the attention of young persons eligible for Navy service; knowing where and when to prospect; persisting in prospecting and following up on leads even under considerable adversity.

Exerts little effort prospecting; for example, often fails to follow up on even promising leads, and uses recruiting tools (e.g., telephone, RTools) sparingly and ineffectively.	Exerts effort prospecting, but may use a limited number of recruiting tools and may not spend enough time with or direct sufficient effort toward the most productive sources and prospects.	Uses a number of sources and recruiting tools for prospecting and is effective at locating and contacting qualified prospects.	Displays exceptional ingenuity and energy and uses a wide variety of recruiting tools very effectively to locate and contact qualified prospects.
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A-2

★ ★
Needs Considerable Improvement

⦿ ✨ ⊕
Needs Improvement

⊕ ✨
Effective

⊕ ✨
Very Effective

B. Gaining And Maintaining Rapport

Being hospitable to prospects in the office; gaining the trust and respect of prospects; adjusting to applicants' styles and acting appropriately with different types of applicants.

<p>Is very poor at gaining and maintaining rapport; may display a lack of interest to individual prospects or may answer questions in an impersonal way.</p>	<p>Has trouble interacting with certain prospects; sometimes appears disinterested in a prospect or may have a standard approach to interacting that is inappropriate for some prospects.</p>	<p>Is typically able to put prospects at ease, maintains good rapport with them, and interacts with most prospects in a warm and friendly way.</p>	<p>Interacts very effectively with all types of prospects; is excellent at gaining and maintaining rapport and establishing trust with prospects.</p>
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★ ★
Needs Considerable Improvement

✱ ✱ ⊕
Needs Improvement

⊕ ✧
Effective

⊕ ⊕ ⊕
Very Effective

C. Obtaining Information From Prospects And Making Good Person-Navy Fits

Making accurate judgments about prospects' preferences and needs, based on good interviewing skills; effectively obtaining information about prospects from other sources (e.g., high school principal, parents) to assess their qualifications and needs.

<p>Is very poor at getting prospects to reveal their needs and buying motives, making it highly difficult to suggest appropriate Navy opportunities; may suggest features or programs that clearly don't interest prospect.</p>	<p>Sometimes fails to learn enough about prospects to identify their primary needs and buying motives; may suggest Navy features and benefits that do not result in a good match with the individual's needs.</p>	<p>Is good at blueprinting most prospects, evaluating their needs and then discussing Navy opportunities appropriate for meeting those needs.</p>	<p>Always blueprints effectively, identifying prospects' needs and career motivations and then is excellent at emphasizing Navy features and opportunities that address these needs/motivations.</p>
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A-4



Needs Considerable Improvement

Needs Improvement

Effective

Very Effective

D. Salesmanship Skills

Skillfully persuading prospects to join the Navy; using Navy benefits and opportunities effectively to sell the Navy; adapting selling techniques appropriately to different prospects, effectively overcoming objections to joining the Navy.

<p>Fails to describe Navy features/benefits important to individual prospects, and is frequently unable to counter objections to joining the Navy; often misses opportunities to close even when it's clearly appropriate to do so.</p>	<p>Describes Navy features and benefits in a way that is sometimes not suited to an individual prospect's interests or needs and may not recognize prospect's criticisms or objections to the Navy; at times, misses opportunities to close.</p>	<p>Describes Navy features/benefits so that most prospects become more interested in the Navy and is prepared to counter frequently heard objections about the Navy; knows when and how to close in most situations.</p>	<p>Describes Navy life and benefits in a highly appropriate and convincing way for each prospect, and is very adept at answering questions about the Navy or countering any objections; never misses opportunities to close.</p>
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A-5

★ ★
Needs Considerable Improvement

✱ ✱ ⊕
Needs Improvement

⊕ ✧
Effective

⊕ ⊕ ⊕
Very Effective

E. Establishing And Maintaining Good Relationships In The Community

Contacting and working effectively with individuals and agencies capable of helping with prospects; presenting a good image and building a good reputation for the Navy by developing positive relationships with persons in the community.

<p>Alienates individuals in the community by failing to honor commitments, making demands, or avoiding personal contact altogether; presents negative image of the Navy by poor personal appearance or behavior.</p>	<p>Does not make regular contact with community agencies that might be helpful in recruiting, and fails to develop relationships fully; is not particularly alert to opportunities to promote the Navy in the community.</p>	<p>Spends productive time with individuals/agencies in the community, and keeps them informed about most Navy activities; may arrange Navy activities for community persons who can help in recruiting.</p>	<p>Is exceptionally adept at developing excellent relationships with relevant individuals and community agencies, and projects a very positive image of the Navy; may volunteer off-duty time to help in the community.</p>
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★ ★
Needs Considerable Improvement

☀ ✨ ⊕
Needs Improvement

⊕ ✨
Effective

◊ ✨
Very Effective

F. Providing Knowledgeable And Accurate Information About The Navy

Displaying considerable knowledge about Navy opportunities, and answering questions in a competent manner; providing accurate information about Navy life, so that the prospect or recruit is fully informed but not discouraged from joining the Navy; being up to date on changes in the Recruiting Manual and Navy directives.

<p>Frequently fails to provide accurate information about Navy opportunities or benefits, and often fails to prepare recruits for Navy life or RTC; spends little time learning about Navy opportunities.</p>	<p>Provides information about certain aspects of Navy life and opportunities, but some of it may be inaccurate or incomplete; is not knowledgeable about many features/benefits of the Navy.</p>	<p>Keeps current on most Navy opportunities, and competently answers questions from prospects; prepares applicants well for the recruitment process.</p>	<p>Consistently provides detailed and accurate information about Navy life, available opportunities, RTC, etc.; always keeps up-to-date on new Navy directives and policies relevant for recruiting.</p>
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★ ★
Needs Considerable Improvement

✱ ✱ ⊕
Needs Improvement

⊕ ✧
Effective

⊔ ⊡ ★
Very Effective

G. Administrative Skills

Planning ahead; organizing time efficiently; completing paperwork accurately and on time; keeping track of appointments; not wasting time.

<p>Consistently fails to complete necessary forms or may use wrong forms; organizes time very poorly and does not maintain applicant log/planner.</p>	<p>Sometimes completes paperwork late, occasionally with significant errors; is somewhat inefficient in use of time, and may at times schedule appointments without considering other events.</p>	<p>Usually completes paperwork on time and with few errors; keeps a complete and accurate applicant/log planner, and generally uses time efficiently.</p>	<p>Finishes all paperwork accurately and on time; devises plans so as to achieve own and district goals; maintains complete calendar of relevant events and schedules work activities very efficiently and effectively.</p>
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8-V

★ ★
Needs Considerable Improvement

☼ ☼ ⊕
Needs Improvement

⊕ ✧
Effective

◊ ★
Very Effective

H. Supporting Other Recruiters And The Command

Coordinating activities with other recruiters to maximize the productivity of the station and district; using own time to support other Navy recruiters when appropriate; providing constructive feedback and helpful tips to other recruiters, especially if they are new.

<p>Is a very poor team player, placing own goals ahead of the group and often refusing to help other recruiters; is quick to blame others when the station does not achieve goal; lets others carry the recruiting load.</p>	<p>Helps and provides feedback to other recruiters, but only when asked; may complain about production quotas, or having to work extra time.</p>	<p>Supports the Command in ways that are helpful; generally works with other recruiters to help them or to improve their skills.</p>	<p>Is always enthusiastic and works to build group spirit; consistently helps other recruiters, even when he/she is busy; always shares information so as to increase group production.</p>
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6-V



Needs Considerable Improvement

Needs Improvement

Effective

Very Effective

**Appendix B:
Navy Recruiter Participation Information Sheet**

Participant Information Sheet

Note: Please print your responses. All information is strictly confidential.

1. Name _____
Last First MI Rank

2. SSN _____

3. Age _____ 4. Gender Male _____ Female _____

5. How long have you been in the Navy? _____ Years _____ Months

6. Where is your first recruiting assignment? _____

7. What is your current marital status (place a check before the appropriate category)?

- a. ___ Married c. ___ Engaged e. ___ Living together
b. ___ Divorced/Widowed/Separated d. ___ Never been married

8. Which ethnic group best describes you?

- a. ___ White/Caucasian d. ___ Hispanic/Latino/Mexican American
b. ___ African American/Black e. ___ Native American/Alaskan Native
c. ___ Asian/Pacific Islander f. ___ Other (please specify)

9. What is the highest level of education you have completed?

- a. ___ Less than High School c. ___ Some College e. ___ College

Graduate

- b. ___ High School Graduate/GED d. ___ Associate's Degree

10. Please rate each of the statements listed below using the following 5-point scale.

- 1 strongly disagree
2 somewhat disagree
3 neither agree nor disagree
4 somewhat agree
5 strongly agree

___ **I would be very happy to spend the rest of my career with the Navy**

___ **I owe a great deal to the Navy**

- I feel I have too few options to consider leaving the Navy**
- I do not feel a strong “sense of belonging” to the Navy**
- Too much of my life would be disrupted if I decided I wanted to leave the Navy now**
- I do not feel any obligation to remain with the Navy**

**Appendix C:
Navy Recruiter Proctor Script for Predictive Data
Collection**

Navy Recruiter Predictor Instructions Script

First, introduce yourself and then say:

We have been asked by CNRC to develop and evaluate new survey instruments that can be used to identify individuals with high potential for recruiting duty. To accomplish this we will be administering these experimental surveys to all incoming ENRO students over the next six months and then following up to evaluate the ability of the surveys to identify effective recruiters. Let me emphasize that the surveys are experimental at this point, so there are no right or wrong answers. Also, your individual responses will not be reported to the Navy and will not affect your career in any way. We are not evaluating you; we're evaluating the survey instruments' usefulness as a screening tool for NCOs being considered for recruiting duty sometime in the future. Please answer the survey items honestly and accurately.

OK, let's go over some operational details. We have tried to make this process as easy as possible so please bear with us as we go through these procedures.

Operational Instructions

1. Stapled to the front cover of your packet is an Instruction Sheet for each of the four instruments we are asking you to complete today. It is important that you complete ALL FOUR instruments and their appropriate answer sheets in the order specified on the Instruction Sheet. This instruction sheet has important information for filling out each answer sheet. For example, as you can see on the Instruction Sheet, for the first instrument called the "Special Assignment Battery Work Style Inventory" we ask you to put your social security number in the spaces marked ID Number on the answer sheet. There will be separate instructions for each of the four instruments. However, for all instruments, we ask that you DO NOT WRITE IN ANY OF THE TEST BOOKLETS and that you are sure to put your social security number on every answer sheet. Again your responses on all of the items will be kept confidential.
2. *Note: If they ask why they need to put their social security numbers and names on the forms, explain to them that the information from these tests will be analyzed with their performance data at a later date. Assure them that the results of these analyses will only be reported on a group level to the Navy.*
3. Now open your packets. The first page in your packet should be the Participant Information Sheet. (*Hold one up*). Please take a few minutes now and complete this information sheet. (*Wait for them to finish*).

4. You should also have a total of four instruments and answer sheets. The first instrument is the “Special Assignment Battery Work Style Inventory” and has a blue answer sheet marked General Purpose - NCS- Answer Sheet (*Hold one up*). The second instrument is called the “Vocational Interest Career Examination for Navy Recruiters” and has an orange answer sheet (*Hold one up*), the third is the NEO PI-R with a navy blue answer sheet (*Hold one up*) and the fourth is a purple EQ-i booklet with a black and white answer sheet (*Hold one up*). If you are missing any of these booklets or answer sheets, please raise your hand and I will give you what you are missing.
5. Please let me know if you have any questions before we begin (*Pause*). Thank you very much for your help with this important project.

Appendix D: RAB Scale Definitions

RAB Scale Definitions

Ambition

The tendency to set high work standards and strive to meet them. Persons who score high on this scale are more willing to make sacrifices to meet their goals, are optimistic about their future, and believe that they will be successful.

Extroversion

The tendency to be engaging, lively, and sociable. Persons who score high on this scale are energetic, approachable, have lots of friends, and enjoy being the center of attention.

Emotional Stability

The tendency to have a happy, positive attitude toward life. Persons who score high on this scale are more self confident and content, whereas persons who score low on this scale need more reassurance, see life as more unfair, and have difficulty coping with stress.

Leadership

The tendency to enjoy having power or influence over others and to prefer leadership positions.

Conscientiousness

The tendency to be planful, organized, and rule-abiding. Persons who score high on this scale are more deliberate and orderly in their activities, whereas persons who score low are more carefree, easygoing, and spontaneous.

**Appendix E:
Participant Information Sheet for the Concurrent
Validation Study**

Participant Information Sheet

Note: Please print your responses. All information is strictly confidential.

1. Name _____
Last First MI Rank

2. Age _____ 3. Gender Male ___ Female _____

4. How long have you been in the Navy? _____ Years _____ Months

5. What is your current job/position? Recruiter RINC Zone Supervisor
 Other _____

6. How long have you been in your current job/position? _____ Years _____ Months

7. Current Zone location: _____

8. Current Station location (if applicable): _____

9. What is your current marital status (place a check before the appropriate category)?

- a. ___ Married c. ___ Engaged e. ___ Living together
b. ___ Divorced/Widowed/Separated d. ___ Never been married

10. Which ethnic group best describes you?

- a. ___ White/Caucasian d. ___ Hispanic/Latino/Mexican American
b. ___ African American/Black e. ___ Native American/Alaskan Native
c. ___ Asian/Pacific Islander f. ___ Other (please specify)

11. What is the highest level of education you have completed?

- a. ____ Less than High School c. ____ Some College e. ____ College
- Graduate
- b. ____ High School Graduate/GED d. ____ Associate's Degree

**Appendix F:
Informed Consent Form for the Concurrent Validation
Study**

INFORMED CONSENT AND PRIVACY STATEMENT

The overall objective of this project is to evaluate new recruiter selection tools. The end goal is to produce a selection tool that will ensure that sailors with a high potential for success in recruiting duty will be selected and trained to be recruiters in order to maximize overall recruiter productivity. To accomplish this, we need you to provide performance ratings of one (or possibly more) of the recruiters working for or with you. These performance ratings will be confidential, for-research-only evaluations. A coding system will be used that ensures no names will appear on the actual rating form. Researchers will do all of the data analyses, and the Navy will not see any individual level data.

Authority to request this information is granted under 10 U.S.C. 5031 and 5032, and 5 U.S.C. 301: Executive Order 9397. Your answers are confidential. No one will be able to identify you personally.

PURPOSE: The purpose of this study is to identify measures for a selection protocol that can be developed and provided to sailors prior to being assigned to recruiting duty. This protocol will increase the likelihood of improved recruiter performance and productivity.

ROUTINE USES: The information provided in this questionnaire will be analyzed by Personnel Decisions Research Institutes, Inc. (PDRI) and Navy Personnel Research, Studies, and Technology (NPRST).

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

PARTICIPATION: Participation in this study is entirely voluntary. Failure to respond to any of the questions will not result in any penalties to you. However, your views are extremely important and will be critical for completion of the recruiter selection tool and thus ensuring the selection of individuals with the highest potential for success in recruiting duty.

STATEMENT OF RISK: The data collection procedures are not expected to involve any risk or discomfort to you.

If you have any questions about this questionnaire, please contact Mr. Ron Bearden, DSN 882-2972 or COM 901-874-2972. For questions regarding Human Subjects issues contact NPRST Protection of Human Subjects Committee, DSN 882-3086 or COM 901-874-3086 or e-mail IRB@persnet.navy.mil.

I have read the Informed Consent and Privacy Statements and wish to proceed with the questionnaire.

Signature

Date

**Appendix G:
Sample Performance Rating Sheet**

Performance Rating Sheet

Rater Code Number: _____ **«Rater Code»**

Mark your answers by blackening the appropriate circle

Ratee Code Number:	«Ratee1_Code»	«Ratee2_Code»	«Ratee3_Code»
Your relationship to the ratee:	_____ Peer _____ Supervisor	_____ Peer _____ Supervisor	_____ Peer _____ Supervisor
Length of time you've worked with the ratee:	_____ Years _____ Months	_____ Years _____ Months	_____ Years _____ Months
A. Locating And Contacting Qualified Prospects	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
B. Gaining and Maintaining Rapport	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
C. Obtaining Information From Prospects and Making Good Person-Navy Fits	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
D. Salesmanship Skills	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
E. Establishing And Maintaining Good Relationships In The Community	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
F. Providing Knowledgeable And Accurate Information About The Navy	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
G. Administrative Skills	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
H. Supporting Other Recruiters And The Command	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
Overall Effectiveness	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
Ratee name:	«Ratee1_Name»	«Ratee2_Name»	«Ratee3_Name»

G-1

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