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First Watch on the First Term of Enlistment: A Summary and Update of Results from Version 1 of the First Watch Instruments

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14. ABSTRACT

The First Watch project was designed by NPRST researchers to determine the core causes for first-term enlisted attrition in the Navy. This report presents results from the first of three different iterations of surveys used in that project. Results show that Sailor's attitudes toward the Navy and their career intentions change over the course of their first term and that measures such as stress, morale, met expectations, career intentions, organizational commitment, job satisfaction, and Person-Organization Fit were reliable predictors of attrition at various points in a Sailor's first term of enlistment.

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Foreword

This technical note is a product of the Navy's First Watch on the First Term of Enlistment (First Watch) research project. First Watch was a longitudinal project that assessed cohorts of Navy recruits/Sailors at key points during their first term of enlistment (typically their first 4 years in the Navy). Questionnaires were administered: (1) on the first day of recruit training (New Sailor Survey); (2) at the end of recruit training (RTC Graduate Survey); (3) at the end of "A"/Apprentice School training ("A" School Survey); (4) when a recruit/Sailor leaves the Navy during training (Exit Survey); and (5) after the Sailor begins his or her job in the fleet (Fleet Survey).

Several cohorts of first term recruits/Sailors were included in this project. Marshall-Mies et al. (2007) examined a sample of the first cohort used in this project and presented results in extensive, but descriptive form. This report expands on the results reported in Marshall-Mies et al. (2007), by examining the full cohort, rather than a sample of respondents from it. This report also presents results based on inferential statistics, rather than simple descriptive data and describes changes in computational methods and statistics not included in the Marshall-Mies et al. (2007) report. This summary also includes results from the Fleet Survey associated with this cohort that was not presented in Marshall-Mies et al. (2007).

DAVID L. ALDERTON, Ph.D.
Director

Executive Summary

First Watch on the First Term of Enlistment (First Watch) was designed by Navy researchers at Navy Personnel Research, Studies, and Technology (NPRST) as a comprehensive assessment of recruits'/Sailors' background and demographics, motivation, their recruitment, classification, and reclassification, as well as training and fleet experiences throughout their first term. The project's primary objectives were to identify and understand the root causes of unwanted attrition and improve retention during the first term.

First Watch developed five different surveys to be administered at five different times in a Sailor's/recruit's first term. These surveys examined the respondent's background, and attitudes toward the Navy and their Navy experiences at: (1) the beginning of recruit training; (2) at the end of recruit training; (3) when the recruit/Sailor dropped out of recruit training or "A"/Apprentice School; (4) at the end of "A"/Apprentice School; and (5) one year after the Sailor reached his/her first Navy job.

The Prediction of RTC Attrition

The positive influence of relatives, friends, and Recruit Division Commanders (RDCs) was found to be significantly associated with graduation from recruit training. Also, even at the earliest stages of a Sailor's career, there are some indicators that seem to be related to attrition at RTC. On the first day of recruit training, eventual RTC graduates felt more social pressure about completing their enlistment, felt significantly more strongly about completing their enlistment, were more positive about the Navy as a career choice, and recommending the Navy to a friend or family member than eventual RTC attrites.

Post-training Attrition

First-term attrition was examined for the 12 months after RTC and "A"/Apprentice School graduation. While few variables predicted attrition 12 months after "A"/Apprentice School graduation, numerous variables predicted attrition in the 12 months following RTC graduation. The extent to which the respondent's expectations about the Navy were met, their training experiences in RTC, levels of stress and morale while in RTC, Navy career intentions measured at the end of RTC, continuance and affective commitment at the end of RTC, and the RTC graduates' perception of their fit with the Navy, all predicted attrition in the 12 months following the administration of the RTC Graduate Survey.

Research presented in this paper also identifies a number of variables that were shown to predict attrition in the 12 months after the Fleet Survey was administered. Variables such as perception of how well RTC prepared the respondent for the fleet, how well the Sailor's fleet experiences met his/her expectations, the Sailor's level of stress and morale after arriving in their fleet job, their perceived overall fit with the Navy, as well as their group and job fit, and job satisfaction all significantly predicted attrition in the fleet.

Results in this paper also indicate that many measures that are associated with first term attrition, change substantially as the recruit/Sailor moves through his/her first term in the Navy. For instance, fleet measures of organizational commitment, intentions to remain in the Navy, and morale were substantially lower than the same measures examined at the end of RTC and "A"/Apprentice School, while stress was reported as substantially higher.

Conclusions

This paper concludes that while a number of variables were significantly associated with success in RTC and with attrition later in first term, how these variables interact with each other to clearly explain first-term attrition is a matter that must be further explored. Further, the results described in this paper indicate that predictors of first-term attrition may interact dissimilarly at different times in Sailor's first term. Therefore, it seems likely that unique models may have to be developed to explain and predict attrition at each critical point in the Sailor's first term.

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Introduction

All organizations are concerned about retention and attrition. The U.S. Navy is no exception. Historically, the U.S. Navy enlists approximately 35,000 to 50,000 individuals annually; and between 2000 and 2005, experienced attrition rates of approximately 25–30 percent during first-term enlistment (usually a 4-year obligation) (Chief of Naval Operations, Public Affairs Office, 2002; Government Accountability Office, 2000; Golfin, 2005; Harris, White, Eshwar, & Mottern, 2005).

When recruits fail to complete their obligation (i.e., attrite), the Navy suffers monetary losses associated with the costs incurred in recruiting and training them; these costs are compounded by additional costs required to replace that person. Beyond these monetary costs, there are indirect costs associated with first-term attrition, including reduced readiness, lower morale, and excessive burden on remaining personnel.

First Watch on the First Term of Enlistment (First Watch) was designed by Navy researchers at Navy Personnel Research, Studies, and Technology (NPRST) as a comprehensive assessment of recruits'/Sailors' backgrounds and demographics, motivation, their recruitment, classification, and reclassification, as well as training and fleet experiences throughout their first term. The project's primary objectives are to identify and understand the root causes of unwanted attrition and improve retention during the first term.

First Watch developed five different surveys to be administered at five different times in a Sailor's/recruit's first term. These surveys examined the respondent's background and attitudes toward the Navy and their Navy experiences at: (1) the beginning of recruit training, (2) at the end of recruit training, (3) when the recruit/Sailor dropped out of recruit training or "A"/Apprentice School, (4) at the end of "A"/Apprentice School, and (5) one year after the Sailor reached his/her first Navy job.

First Watch, over the course of the project, developed several different versions of the surveys; and employed and administered them over several different cohorts of recruits since 2002. This report presents results from the first version of the First Watch instruments (Version 1), administered to the first cohort of recruits (Cohort 1). It updates a previous report (Marshall-Mies et al., 2007). This report also includes information from the survey administered in the fleet, which has not previously been reported.

Method

First Watch researchers constructed five questionnaires. These questionnaires contain motivational, personal, and experiential information relevant to five different points in a Sailor's first term. These five points and their associated surveys are: (1) immediately before the beginning of the recruit's initial training at Recruit Training Command (RTC), Great Lakes (New Sailor Survey); (2) at the end of recruit training

(RTC Graduate Survey); (3) at the end of "A"/Apprentice School, where Sailors are trained for their military job ("A" School Survey); (4) when a student leaves the Navy from recruit training or "A"/Apprentice School (Exit Survey); and (5) after the Sailor has been in the Fleet[1] for at least one year (Fleet Survey).[2]

There are several iterations of each of these surveys. While there are common items in each of these surveys across iterations, there are substantial differences as well. This report summarizes the results of the project's first iteration of research instruments (Version 1) administered to the first recruit cohort (Cohort 1) that entered the Recruit Training Center, Great Lakes, between April 2002 and August 2003.[3] This cohort (approximately 46,000 individuals) serves as the basis for this report.

Each of the questionnaires requested the respondent's Social Security Number (SSN). The data from the five different surveys was combined into a single data file using respondent SSN. However, not all respondents included their SSN. Further, many subjects responded to some but not all of the surveys. Respondents whose different questionnaires could not be linked by SSN were treated as individual subjects for the surveys that they did respond to. For instance, many of those responding to the Fleet Survey had not responded to any of the other surveys. In this situation, such subjects were included in analyses when examining only Fleet Survey data, but were treated as missing when examining data that included variables for more than just this survey.

Study Measures

The measures used in this report are presented in Table 1. A complete list of scales and their associated items can be found in Appendix A. During analysis, response options for many of the items were recoded so that a higher number represents a greater presence of the construct being measured. Consequently, response options and results are listed according to their recoded values. For all computed scales, reliability and factor analyses were performed using data from the first instrument on which the scale items appeared.

[1] The word "Fleet" is used here to describe a Sailor's first job outside of the training command, regardless of whether that job is on a ship or not.

[2] Copies of the Version 1 instruments can be found in Marshal-Mies, Lupton, Hirose, White, Mottern, & Eshwar (2007). A copy of the Fleet Survey may be obtained by contacting Dr. Michael White (901-874-4659 or michael.a.white@navy.mil) or Dr. Jacqueline Mottern (901-874-4656 or jacqueline .mottern@navy.mil).

[3] The Fleet Survey was administered between November 2004 and January 2005.

Table 1
First Watch project measures

Demographics	Met expectations
Importance of completing enlistment	Navy career intentions
Navy as the best career choice	Organizational Commitment (scale)
Recommendations of Navy to friend or family	Person-Organization (P-O) Fit (scale)
The Completion of Navy Training	Person-Job (P-J) Fit (scale)
Training Experiences	Person-Group (P-G) Fit (scale)
Stress	Job Satisfaction (scale)
Morale	

Results

Demographics

Demographic data from the New Sailor Survey was obtained for 65 percent of the all the respondents in the database. Of these, 83 percent were male, 93 percent were never married, and 84 percent had a high school diploma from a public or private school. Sixty-two percent of those for whom we have demographics were White, 18 percent were Black, 5 percent were Asian or Pacific Islander, 5 percent were Native American, 16 percent were identified as Hispanic, and 10 percent identified themselves as "Other."[4] These demographics are consistent with the commonly reported demographics of this population (Office of the Under Secretary of Defense, 2004).

At the time they entered the Navy (n = 46,413)[5], 54 percent of the new recruits were E-1s, 28 percent were E-2s, and 18 percent were E-3s. The RTC Graduate Survey shows that by the time of RTC graduation (n = 32,016) the percentage of E-1s had dropped to 42 percent, E-2s had increased to 35 percent, and E-3s had increased to 23 percent. The "A" School survey shows that by the time of "A"/Apprentice School graduation (n = 13,319), the percentage of E-1s dropped still further (34%), while the percentage of E2s remained about as it was for RTC graduates (35%) but the percentage of E=3s had increased to 25 percent. Of those Sailors responding to the Fleet Survey (n = 15,441), 9 percent were E-2s or lower, 33 percent were E-3s, 45 percent of the Sailors were E-4s, and just over a tenth (12.9%) were E-5s and above.

[4] Because respondents could select multiple racial categories, percentages add up to greater than 100%.
[5] These *n*s represent, to a large extent, the populations that the NPRST research team had access to; the reductions in n across surveys more reflect this, than the Navy's first term attrition rate.

Importance of Completing Enlistment

One item on the New Sailor, RTC Graduate, and "A" School surveys asked how important it was for the respondent to complete his/her enlistment. The item's response scale ranged from 1 (*Not important at all*) to 5 (*Extremely important*).

New recruits were highly motivated to complete their enlistment. Virtually all (98%) indicated that it is at least "very important" that they complete their current enlistment, and only 0.3 percent indicated that it was only "slightly" or "not at all" important. As new recruits completed the Navy training program, respondents reported that it was important to complete their enlistment with slightly less frequency than they did at the beginning of training. Ninety-five percent of RTC graduates and 90 percent of "A"/Apprentice School graduates reported that it was at least "very important" to complete their enlistment.

A one-way analysis of variance (repeated measures) and a Hotelling's T^2 were performed comparing New Sailor, RTC Graduate and "A" School Survey respondents on the importance of completing their enlistment. The analysis of variance shows that there is an overall difference between these means ($F = 373.214$; $df = 2, 7704$; $p < .001$); the results from the Hotelling's T^2 indicates that at least one of these means is different from the rest ($F = 335.50$; $df = 2, 3851$; $p < .001$). The means and standard errors of the mean for these groups show that all three groups are significantly different from the others ($M_{ns} = 4.79$, $SE=.008$; $M_{rtc} = 4.64$, $SE=.01$; $M_{as} = 4.47$, $SE=.01$) indicating that New Sailors Survey respondents were the most positive, followed be RTC, and "A" School Survey respondents.

An independent groups *t*-test was performed on this variable, comparing RTC graduates and attrites responses to this variable, from the New Sailor Survey[6]. Results show that those who would ultimately graduate from RTC felt, on the average, significantly more strongly about completing their enlistment than RTC attrites, even at the beginning of recruit training ($M_{grad} = 4.81$, $M_{att} = 4.73$; $t = 7.84$, $df = 4050$, $p < .001$).

RTC and "A"/Apprentice School responses to this measure were examined, using independent groups *t*-tests, relative to first term attrition. This measure from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, this measure from the "A" School Survey was examined against those who attrited from or remained in the Navy, over the 12 months following that survey's administration.

[6] While this paper presents some analyses on RTC graduation and attrition, as predicted from data in the New Sailor survey, see White, Harris, Eshwar and Mottern (2008) for a more complete discussion of this topic.

Results of these tests show significant differences in attrition rates for this measure for both RTC and "A" School graduates ($p < .001$). These analyses indicate that, on the average, those who attrited within 12 months of survey administration reported significantly lower intentions of completing their enlistment at the time of survey administration, than those who remained 12 months after survey administration ($M_{rtc\text{-}att} = 4.48$, $M_{rtc\text{-}rem} = 4.67$, $t = 9.04$, $df = 1848$, $p < .001$; $M_{as=att} = 4.31$, $M_{as\text{-}rem} = 4.48$, $t = 3.61$, $df = 579$, $p < .001$).

Navy as the Best Career Choice

One item on the New Sailor, RTC Graduate, and "A" School surveys asked whether the Navy was the respondent's best career choice. The response scale for this item ranged from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

Overall, depending on the survey**,** three-fourths to nine-tenths of the respondents reported that the Navy was their best career choice. While "A"/Apprentice School graduates were generally positive (73%), they were the least likely to agree that *"The Navy is my best career choice,"* followed by RTC graduates (81%), and new recruits (92%).

A one-way analysis of variance (repeated measures) and a Hotelling's T^2 were performed comparing New Sailor, RTC Graduate and "A" School Survey respondents on whether the Navy was their best career choice. The analysis of variance shows that there is an overall difference between these means ($F = 582.952$; $df = 2, 7694$; $p < .001$); the results from the Hotelling's T^2 indicates that at least one of these means is different from the rest ($F = 552.247$; 2, 3846; $p < .001$). The means and standard errors of the mean for these groups show that all three groups are significantly different from the others ($M_{ns} = 4.55$, SE=.011; $M_{rtc} = 4.28$, SE=.014; $M_{as} = 4.06$, SE=.015) indicating that New Sailors Survey respondents were the most positive, followed by RTC, and "A" School Survey respondents.

An independent groups *t*-test was performed comparing RTC graduates and attrites on this item, from the New Sailor Survey. Results show that, even at the beginning of recruit training, those who would become RTC graduates were significantly more positive about the Navy as their best career choice than those who would ultimately become RTC attrites ($M_{grad} = 4.57$, $M_{att} = 4.46$; $t = 8.47$, $df = 4136$, $p < .001$).

RTC and "A"/Apprentice School responses to this measure were examined, using independent groups *t*-tests, relative to first term attrition. This measure from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, this measure from the "A" School Survey was examined against those who attrited from or remained in the Navy, over the 12 months following that survey's administration.

Results of these tests show significant differences in attrition rates for this measure for both RTC and "A" School graduates ($p < .001$). These analyses indicate that, on the average, those who attrited within 12 months of survey administration reported significantly lower ratings of the Navy as their best career choice at the time of survey administration, than those who remained 12 months after survey administration ($M_{rtc\text{-}att} = 4.07$, $M_{rtc\text{-}rem} = 4.30$, $t = 8.84$, $df = 1885$, $p < .001$; $M_{as\text{-}att} = 3.82$, $M_{as\text{-}rem} = 4.02$, $t = 3.90$, $df = 572$, $p < .001$).

Recommendations of Navy to Friends and Family

The overall attitude of respondents toward the Navy may be reflected by the extent to which they agree with the statement "*I would recommend the Navy to a friend/family member*." This item was included on the New Sailor, RTC Graduate, and Exit Surveys. The response scale for this item ranged from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

As shown in Figure 1, nine-tenths of new recruits and about four-fifths of RTC graduates said they would recommend the Navy to a friend or family member. This is in comparison to only about one-half of respondents to the Exit survey.

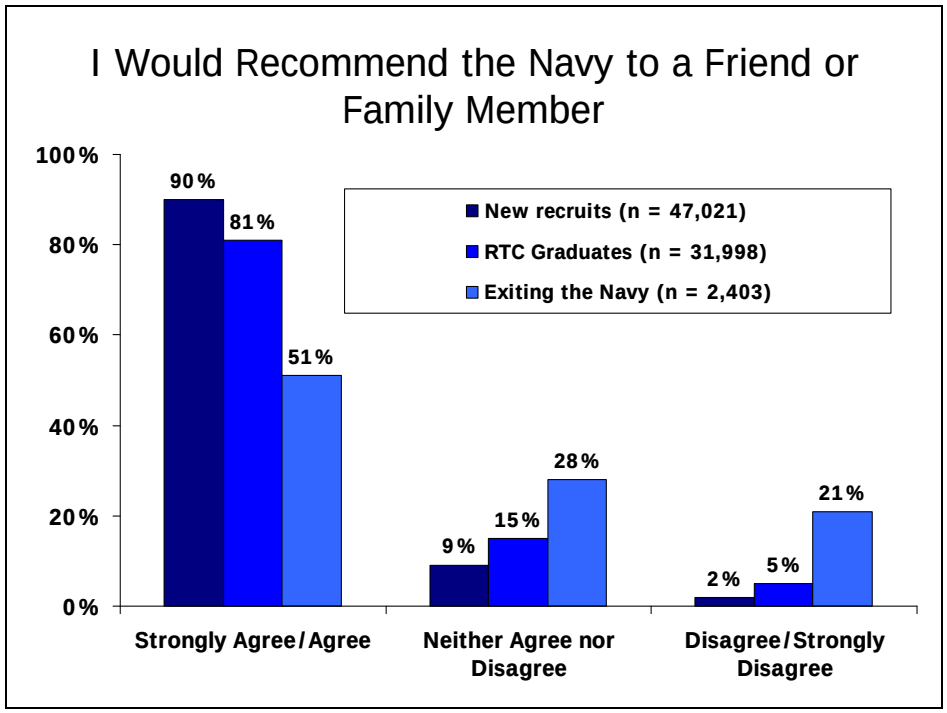

Figure 1. Percent of survey respondents who would recommend the Navy to a friend or family member.

An independent groups *t*-test was performed contrasting RTC graduates and attrites on this question, based on their responses to the New Sailor Survey. Results show that those who would ultimately graduate from RTC were significantly more positive about their recommendation of the Navy to a friend or family member than were those who would ultimately become RTC attrites, even before recruit training began (M_{grad} = 4.51, M_{att} = 4.41; t = 7.46, df = 4146, $p < .001$).

RTC responses to this measure were examined using an independent groups *t*-test, relative to first term attrition. This measure from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Results of this test show a significant difference in attrition rates for this measure for RTC graduates ($p < .001$). This analysis indicates that the average response for those who attrited within 12 months of survey administration reported lower ratings of their inclination to recommend the Navy to a friend of family member at the time of survey administration, than those who remained 12 months after survey administration ($M_{rtc\text{-}att}$ = 4.03, $M_{rtc\text{-}rem}$ = 4.25, t = 8.10, df = 1887, $p < .001$).

The Completion of Navy Training

One item in the New Sailor, RTC Graduate, and "A" School surveys asked whether people important to the recruit/Sailor would be disappointed if they didn't finish their enlistment. The response scale for this item ranged from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

Approximately three-fourths of all First Watch respondents in training agreed with this statement. New recruits were most likely to agree (82.9%), followed by RTC graduates (79.4%), and "A"/Apprentice School graduates (75.4%).

A one-way analysis of variance (repeated measures) and a Hotelling's T^2 were performed comparing New Sailor, RTC Graduate and "A" School survey respondents on whether the respondent felt that people important to him/her would be disappointed if he/she left the Navy before completing their enlistment. The analysis of variance shows that there is an overall difference between these means (F = 82.875; df = 2, 7726; $p < .001$); the results from the Hotelling's T^2 indicates that at least one of these means is different from the rest (F = 76.144; df = 2, 3862; $p < .001$). The means and standard errors of the mean for these groups show that all three groups are significantly different from the others (M_{ns} = 4.34, SE=.016; M_{rtc} = 4.26, SE=.016; M_{as} = 4.13, SE=.017) indicating that New Sailors Survey respondents were the most positive, followed be RTC, and "A" School Survey respondents.

An independent group's *t*-test was used to further examine the responses to this item from the New Sailor Survey, broken out by RTC attrites and graduates. The results showed that on the average, even at the beginning of RTC, RTC graduates reported significantly more "social pressure" to complete their enlistment than did RTC attrites (M_{grad} = 4.39, M_{att} = 4.29; t = 5.734, df = 4199, $p < .001$).

RTC and "A"/Apprentice School responses to this measure were examined, using independent groups t-tests, relative to first term attrition. This measure from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, this measure from the "A" School Survey was examined against those who attrited from or remained in the Navy, over the 12 months following that survey's administration.

Results of these tests show that while there were no significant differences in attrition rates on this measure for "A" School graduates ($p < .05$) there were significant differences for RTC graduates. These analyses indicate that the average response for those who attrited within 12 months of RTC Graduate survey administration was significantly lower on this item at the time of survey administration, than those who remained 12 months after survey administration ($M_{rtc\text{-}att} = 4.15$, $M_{rtc\text{-}rem} = 4.29$, $t = 4.89$, $df = 1920$).

Respondents to the RTC Graduate, Exit, and "A: School surveys were also asked whether a variety of people, potentially influential to the recruit/Sailor, were important to their decision to stay in the Navy[7]. As shown in Table 2, parents were the most influential in RTC graduates' decisions to stay in the Navy (83.7%), followed by other relatives/friends (77%), the Recruit Division Commanders (RDCs) (75.6%), fiancé or girl/boy friend (66.8%), and Chaplains (63.3%). Among those most influential in "A"/Apprentice School graduates' decisions to stay in the Navy were parents (82.1%), military instructors (81.2%), other relatives and friends (75.9%), military advisors (69.1%), fellow classmates (59.0%), and mentors (58.3%).

Table 2
Influences to stay in training:
RTC and "A"/Apprentice School graduates

	RTC Graduates	"A" School Graduates
RDC	75.6%	N/A
Fellow Recruits/Classmates	60.5%	59.0%
Spouse	59.5%	25.7%
Fiancé or Girl/Boy Friend	66.8%	47.7%
Parents	83.7%	82.1%
Other Relatives/Friends	77.0%	75.9%
Chaplains	63.3%	45.7%
Military Instructors	N/A	81.2%
Civilian Instructors	N/A	42.1%
Military Advisors	N/A	69.1%
Mentors	N/A	58.3%

[7] The response scale for this item was: 1 = Influence to compete training; 2 = No effect; and 3 = Influence to leave training.

Those exiting the Navy from RTC (RTC attrites) were influenced to stay to a lesser extent by all sources of support compared to the RTC and "A"/Apprentice School graduates (See Tables 2 and 3). However, Exit Survey respondents did not report that these same people had a proportional influence on them to leave the Navy. Rather, Exit Survey respondents predominantly reported that these people had "no effect" on their decision to leave the Navy.

Table 3
Influences to stay in training: RTC attrites

	Stay	No Effect	Leave
RDC	31.8%	45.4%	22.8%
Fellow Recruits/Classmates	43.5%	41.5%	15.0%
Spouse	13.7%	70.4%	16.0%
Girl/Boyfriend	20.1%	50.9%	29.0%
Parents	36.8%	45.7%	17.5%
Other Relatives/Friends	28.7%	51.4%	19.9%
Chaplains	25.2%	65.3%	9.5%

Independent groups *t*-tests were performed on these items from the RTC Graduate and Exit Surveys, comparing RTC graduates with RTC attrites. Results show that RTC graduates and attrites were significantly different across all influences to stay in the Navy ($p < .001$; see Table 4 for respective means, *df*s, and *t* values), with RTC graduates consistently showing more support to stay in the Navy from all sources.

Table 4
Mean values and *t*-test scores for RTC graduates and attrites on influences to stay in the Navy

	M	SD	T	*df*	*p*
Source of Influence					
RDC					
Attrites	1.91	0.736	30.55	1502	<.001
Graduates	1.30	0.573			
Fellow Recruits					
Attrites	1.71	0.712	10.85	1591	<.001
Graduates	1.50	0.681			
Spouse					
Attrites	2.02	0.551	23.16	801	<.001
Graduates	1.46	0.610			
Girl/boy friend					
Attrites	2.08	0.701	27.45	1155	<.001
Graduates	1.44	0.700			
Parents					
Attrites	1.80	0.715	30.20	1416	<.001
Graduates	1.20	0.484			
Other Relative					
Attrites	1.90	0.694	31.65	1384	<.001
Graduates	1.27	0.546			
Chaplain					
Attrites	1.85	0.554	27.16	1258	<.001
Graduates	1.38	0.530			

Note: 1 = Influence to Stay, 2 = No effect, 3 = Influence to Leave

Training Experiences

Training Experiences were measured on the RTC Graduate, "A" School, and Exit surveys by asking respondents whether they *Became worse, Stayed the same,* or *Improved* on several different training outcomes (9 on the RTC Graduate and Exit surveys, 10 on the "A" School survey; these items are presented in Table A-1, in Appendix A). These items asked, for example, whether the RTC training had improved "Your ability to lead" or "Your military bearing."

The items for this scale were constructed from input from subject matter experts at the Navy training commands at Great Lakes. The nine items on the RTC Graduate survey were factor analyzed and found to have one underlying factor that accounted for 37 percent of the variance. The items were examined for internal consistency and demonstrated an alpha coefficient of .78. These items were combined into a single mean scale score; seven of the nine items had to have non-missing values for the scale to be computed.[8]

Also using the overall training experiences scale described above, a paired *t*-test was performed contrasting the training experiences of RTC graduates and "A"/Apprentice School graduates. Results show that the average RTC graduate reported that they had improved more as a result of RTC training, than those same respondents reported for their "A" School training (M_{rtc} = 2.68 and M_{as} = 2.46; t = 41.14, df = 4847, $p < .001$).

Again using the overall training scale described above, RTC training and "A"/Apprentice School experiences were examined, using independent groups *t*-tests, relative to first term attrition. The training experiences measure from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, the training experiences measure from the "A" School Survey was examined against those who attrited from or remained in the Navy, over the 12 months following that survey's administration.

Results of these tests show that while there were no significant differences in attrition rates for the training experiences measure for "A" School Survey respondents ($p > .05$), there was a small but reliable difference on training experiences for RTC graduates, between those who attrited (M_{att} = 2.64) and those who remained in the Navy (M_{rem} = 2.67) over the 12 months following survey administration (t = 4.25, df = 1901, $p < .001$).

Training experiences in the Fleet were measured by four items that assessed the respondents' opinion about how well their RTC training prepared them for their work and life in the fleet (these items are presented in Table A-1, Appendix A). The items were measured on a 5-point Likert-type scale, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Factor analysis showed that these four items have one underlying factor that accounts for 64 percent of the variance, with an alpha coefficient of .80. Three of these items had to have non-missing values for the scale to be computed. The average score on the fleet training experiences scale indicates that fleet Sailors responding to the survey generally agreed that their training had prepared them for the Fleet and the Navy (M_{Fleeet} = 3.28).

Fleet training experiences were examined for those who attrited within one year of taking the Fleet survey, against those who remained. An independent groups *t*-test showed that those who attrited within one year after taking the Fleet Survey reported poorer RTC training experiences ($M_{f\text{-}att}$ = 3.19), than those who remained in the Navy ($M_{f\text{-}rem}$ = 3.30) over the 12 months following survey administration (t = 3.472, df = 1022, p = .001).

[8] The "A" School survey has one additional item (see Appendix A, Table A-1). For the scale from the "A" School Survey, eight of the ten items had to have non-missing values for the scale to be computed. The alpha coefficient for this scale was .84.

Stress

Stress was measured with a single item throughout all First Watch surveys. It was thought that a single omnibus item might be a better measure of the construct because it allows respondents to make global subjective judgments of their feelings on this issue, rather than trying to specify, in a scale, all the factors that served as stressors over the course of the recruit/Sailor's training or experiences in the fleet.

The item measuring stress during RTC training (RTC Graduate and Exit surveys) was: "During recruit training my level of stress was..." This item used a 5-point response scale ranging from 1 (*Very low*) to 5 (*Very high*). A similar item measuring stress was included on the "A" School and Fleet Surveys, except that the item referenced the levels of stress relative to their situation at the time of survey administration.

Figure 1 shows levels of stress reported by respondents to the RTC Graduate, "A" School, Exit, and Fleet surveys. Those responding to the Exit Survey reported, by far, the highest level of stress of all respondents.

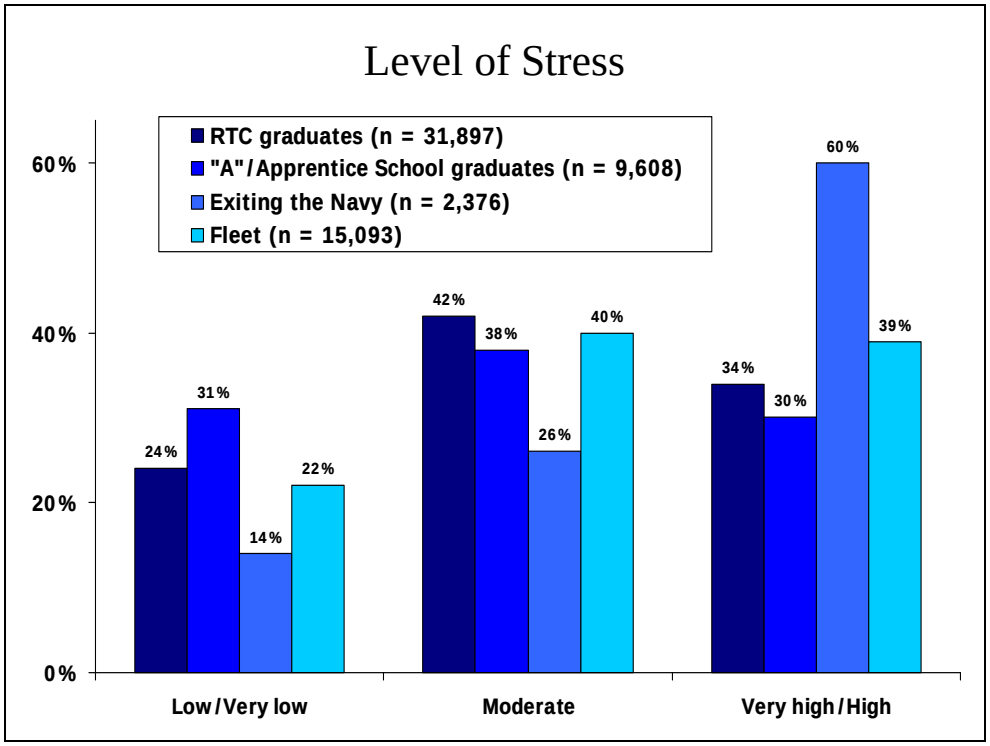

Figure 2. Overall stress experienced by RTC and "A"/Apprentice School graduates, those exiting the, and Fleet Sailors.

A one-way analysis of variance (repeated measures) and Hotelling's T^2 were performed on respondents' measures of stress on the RTC Graduate, "A" School, and Fleet surveys. The analysis of variance showed that that there is an overall difference between these means ($F = 32.72$; $df = 2, 998$; $p < .0001$); the results from Hotelling's T^2 indicates that at least one of these means was different from the rest ($F = 31.09$; $df = 2, 493$; $p < .0001$). The means and standard errors of the mean for these groups show that

all three groups were significantly different from the others (M_{rtc} = 3.04, SE = .044; M_{as} = 2.85, SE = .044; M_{fleet} = 3.28, SE = .045) indicating that, surprisingly, fleet respondents reported the highest levels of stress, followed by RTC graduates, with "A" School graduates showing the least amount of stress.

Again using the measure of stress described above, RTC and "A"/Apprentice School experiences were examined, using independent groups t-tests, relative to first term attrition. The measure of stress from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, the "A" School Survey measure of stress was examined against those who attrited from or remained in the Navy, over the 12 months following the administration of that survey. Results of these tests show that while there was no significant difference in stress reported in the "A" School Survey across those who attrited and remained within 12 months of survey administration ($p > .05$), there was a significant difference in perceptions of stress for RTC graduates, between those who attrited ($M_{rtc\text{-}att}$ = 3.39) and those who remained in the Navy ($M_{rtc\text{-}rem}$ = 3.09) over the 12 months following survey administration (t = 11.47, df = 1921, $p < .001$).

Stress in the fleet was contrasted for those who attrited within one year of taking the Fleet Survey against those who remained. An independent groups t-test showed that those who attrited within one year after taking the Fleet survey reported higher levels of stress ($M_{f\text{-}att}$ = 3.55) at the time of survey administration, than those who remained in the Navy ($M_{\text{f-rem}}$ = 3.22) over the 12 months following survey administration (t = 8.966, df = 1002, $p < .001$). Here, on the average, stress was reliably higher for those RTC graduates who attrited within the 12 months following survey administration, than for those who remained in the Navy over that same time period.

Morale

Morale was measured on the RTC Graduate, "A" School, and Exit surveys using a single item stating, "During (recruit training or "A"/Apprentice school) my overall level of morale was..."; this item used a 5-point response scale ranging from 1 (*Very low*) to 5 (*Very high*). Morale was measured in a similar manner on the Fleet Survey except the question referenced their "current" level of morale, but had the same response scale as the item asked on the other surveys. A single item was employed to measure morale for the same reasons as those for the measure of stress. Figure 3 presents levels of morale for RTC Graduate, "A" School, Exit, and Fleet Survey respondents. This figure shows that RTC and "A"/Apprentice school graduates reported the highest levels of morale, while Fleet respondents, surprisingly showed the lowest level of morale, even lower than RTC attrites.

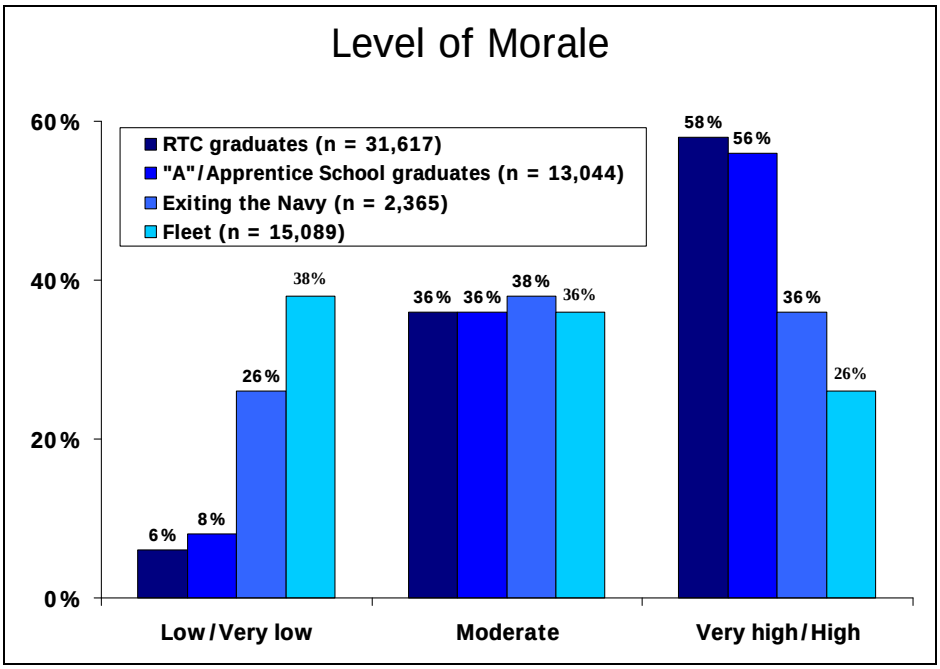

Figure 3. Overall morale reported by RTC and "A"/Apprentice School graduates, those exiting the Navy, and Fleet Sailors.

A one-way analysis of variance (repeated measures) and Hotelling's T^2 were performed on the measures of morale from RTC graduates, "A"/Apprentice School graduates, and respondents to the Fleet Survey. The analysis of variance showed that there is an overall difference between these means ($F = 176.11$, $df = 2, 998$, $p < .0001$); the results from Hotelling's T^2 indicates that at least one of these means is different from the rest ($F = 132.53$; $df = 2, 498$; $p < .0001$). The means and standard errors of the mean for this measure indicate that morale reported by fleet respondents was significantly lower than that reported by either RTC or "A"/Apprentice School graduates ($M_{rtc} = 3.70$, $SE = .036$; $M_{as} = 3.65$, $SE = .038$; $M_{fleet} = 2.83$, $SE = .049$). There were no differences between morale reported by RTC and "A"/Apprentice School graduates.

Again using the measure of morale described above, RTC and "A"/Apprentice School experiences were examined, using independent groups *t*-tests, relative to first term attrition. The measure of morale from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, the "A" School Survey measure of morale was examined against those who attrited from or remained in the Navy, over the 12 months following the administration of that survey. Results of these tests show that while there was no significant difference in morale reported in the "A" School Survey across those who attrited and remained within 12 months of survey administration ($p > .05$), there was a significant difference in perceptions of morale for RTC graduates, between those who attrited ($M_{rtc\text{-}att} = 3.55$) and those who remained in the Navy ($M_{rtc\text{-}rem} = 3.67$) over the 12 months following survey administration ($t = 4.97$;, $df = 1890$, $p < .001$). This analysis indicates that morale was lower at the time of survey administration for those who attrited within 12 months of survey administration than for those who remained in the Navy over that same time period.

Morale in the fleet was contrasted for those who attrited within one year of taking the Fleet Survey against those who remained. An independent groups *t*-test showed that those who attrited within one year after taking the Fleet Survey reported lower morale ($M_{f\text{-}att}$ = 2.53), on the survey, than those who remained in the Navy ($M_{\text{f-rem}}$ = 2.81) over the 12 months following survey administration (t = 6.801, df = 1001, p < .001).

Met Expectations

The extent to which the respondent's expectations about the Navy were met was measured with a single item for the same reasons as the single items measuring stress and morale. For the RTC, Exit, and "A" School surveys the single item was: "During (recruit training or "A"/Apprentice School) how did Navy life compare with your expectations?" The response scale was: 1 = *Much worse than I expected*; 2 = *Somewhat worse than I expected*; 3 = *About the same as I expected*; 4 = *Somewhat better than I expected*; 5 = *Much better than I expected*.

Most RTC and "A"/Apprentice School graduates reported that Navy life compared with their expectations better than or about the same as expected, and less than one-fifth reported it was somewhat or much worse than expected. Those exiting the Navy prior to RTC graduation were much more likely than the graduates to report that Navy life was somewhat or much worse than expected (see Figure 4).

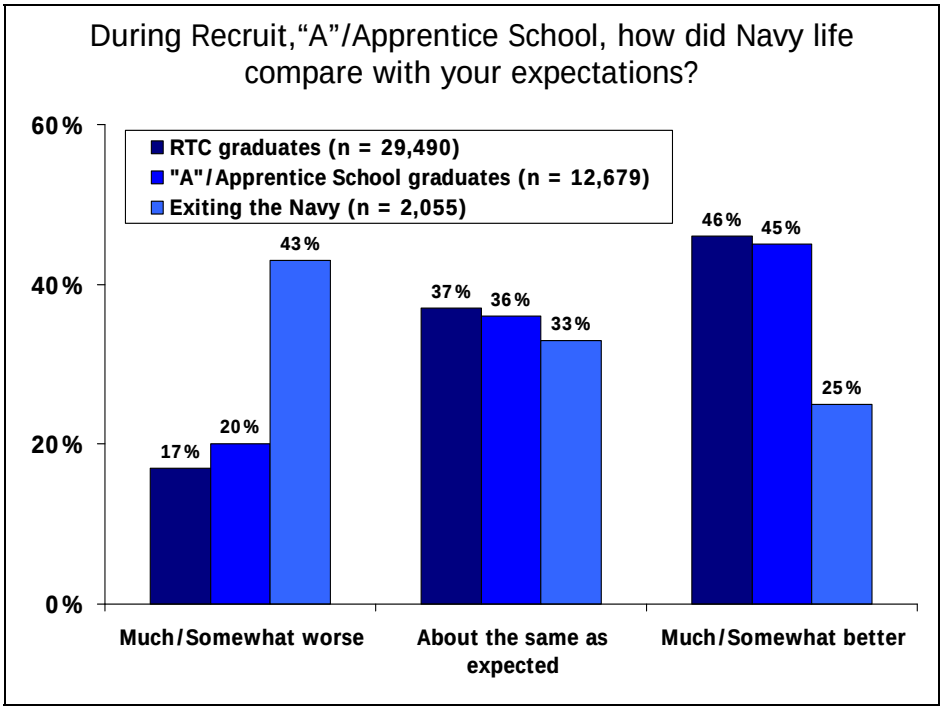

Figure 4. Expectations of Navy life compared with recruit training and "A"/Apprentice School.

Met expectations were examined for RTC and "A"/Apprentice School graduates using a paired groups *t*-test. Results indicate that RTC graduates reported that the Navy met their expectations to a larger extent than "A"/Apprentice School graduates (M_{rtc} = 3.51, M_{as} = 3.45; t = 3.563, df = 4350, $p < .001$).

Again using the measure of met expectations described above, RTC training and "A"/Apprentice School experiences were examined, using independent groups t-tests, relative to first term attrition. The measure of met expectations from the RTC Graduate Survey was examined against those who attrited from or remained in the Navy, over the 12 months following survey administration. Similarly, the "A" School Survey measure of met expectations was examined against those who attrited from or remained in the Navy, over the 12 months following the administration of that survey. Results of these tests show that while there was no significant difference in met expectations reported in the "A" School Survey across those who attrited and remained within 12 months of survey administration ($p > .05$), there was a significant difference in perceptions of met expectations for RTC graduates, between those who attrited ($M_{rtc\text{-}att}$ = 3.25) and those who remained in the Navy ($M_{rtc\text{-}rem}$ = 3.45) over the 12 months following survey administration (t = 6.86, df = 1736, $p < .001$). This analysis indicates that perceptions of met expectations were lower at the time of survey administration for those who attrited within 12 months of survey administration than for those who remained in the Navy over that same time period.

A slightly different item was asked on the Fleet Survey. This item was based on a 5-point, Likert-type response scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) and asked, "My experience in the Navy has met my expectations." Just over one-third disagreed with this item (34.5%), about one-fifth reported "Neither Agree nor Disagree" (20.4%), and over two-fifths agreed (45%). From the standpoint of "met expectations," this is about as positive as those expressed by respondents to the RTC Graduate and "A" School surveys.

The fleet measure of met expectations was contrasted for those who attrited within one year of taking the Fleet survey, against those who remained. An independent groups *t*-test showed that those who attrited within one year after taking the Fleet Survey reported lower levels of met expectations ($M_{f\text{-}att}$ = 2.65) on the survey, than those who remained in the Navy ($M_{f\text{-}rem}$ = 3.05) over the 12 months following survey administration (t = 9.851, df = 1021, $p < .001$).

Navy Career Intentions

For the RTC Graduate, and "A" School surveys, a single item assessing the respondents' career intentions ("What are your Navy career intentions?") was asked. The response scale for this item was: (a) *To complete training in a trade or skill, then leave the Navy before my obligation is complete*; (b) *To complete my ...obligation then leave the service*; (c) *To make the Navy a career ... then leave the Navy*; and (d) *I am not sure of my plans*. Career intentions on the New Sailor Survey had one additional response option: *"To leave the Navy as soon as possible"*, as response option (a).

On the Fleet Survey, a single item asked "Which of the following best describes your career intentions at this time?" The response options for the Fleet Survey career intentions item were: (a) *I intend to remain in the Navy until I am eligible to retire*; (b) *I intend to stay in, but not until retirement*; (c) *I'm not sure what I intend to do*; (d) *I intend to leave, but if I could change rates I would stay*; (e) *I intend to leave the Navy as soon as I can*; and (f) *I would like to stay in the Navy, but am barred from staying*.

Career intentions from the New Sailor and RTC Graduate Surveys showed comparable results; respondents generally indicated their intention to remain in the Navy, at least through their first term of enlistment (55% and 49%, respectively) and virtually none reporting intentions to leave the Navy before the completion of their enlistment (.7% and 1.1% respectively). By "A"/Apprentice School, about one-eighth of respondents (12%) indicated an intention to leave before completing their first term and Fleet respondents career intentions indicated that almost one-third (30%) showed an inclination to leave before the end of their first term of enlistment. However, at each of these data collection points, many of the respondents indicated uncertainty about their career intentions (44% of New Sailor, 49% of RTC Graduate, 45% of "A" School, and 31.8% of "Fleet" survey respondents).

Four Chi-Square analyses were computed for the career intentions variables from the New Sailor[9], RTC Graduate, "A" School, and Fleet surveys, comparing the various career intentions groups from each of these surveys on first-term attrition. RTC recruits reporting career intentions from the New Sailor Survey were compared against RTC attrition. RTC Graduate and "A"/Apprentice School graduates who remained in the Navy within 12 months of completing these surveys, were compared against those who had left the Navy within these respective 12 month periods. Fleet respondents who remained in the Navy 12 months after completing the survey were compared against those who had left the Navy within 12 months of completing the Fleet Survey.

Results indicate that, correcting for multiple independent tests, three of the four analyses proved significant (*New Sailor: df* = 4, $F = 24.89$, $p < .001$; *RTC: df* = 3, $F = 4.84$, $p = .002$; *Fleet: df* = 5, $F = 57.23$, $p < .001$). The analysis on the "A"/Apprentice School career intentions variables proved non-significant when adjusting for multiple independent tests ($p > .0125$).

Examination of the individual cells from the Chi Square analysis of the New Sailor data show that New Sailor Survey respondents who reported that they would leave the Navy were much more likely to attrite from RTC than any other career intention group (15.9% attrition rate for this group, compared to, 9.1% for "Complete Enlistment...", 7.8% for "Not sure...", and 7.4% for "To make Navy a career").

[9] The New Sailor Survey career intent variable had to be recoded for this Chi Square analysis because of expected cell frequencies below the minimum allowed. Response categories a and b ("Leave as soon as possible..." and "To complete training...then leave the Navy...") were combined into a single category for this analysis.

For RTC data, examination of the individual cells from the Chi Square analysis show that RTC Graduate Survey respondents who reported that they would "complete training...then leave the Navy" were somewhat more likely to attrite within 12 months of survey administration than any other career intention group (8.9% for leave "complete training...then leave the Navy", 6.7% for "Complete enlistment ...", 6.1% for "Not sure...", and 5.4% for "To make Navy a career").

For fleet data, examination of the individual cells from the Chi Square analysis show that Fleet Survey respondents who reported that they "intend to leave as soon as I can" and "I would like to stay in...but am barred..." were more likely to attrite within 12 months of survey administration than any other career intention groups (11.8% for "leave as soon as I can" and 18.1 % for "I would like to stay in...but am barred..." compared to, 3.1% for "I intend to remain...eligible to retire," 4.1% for "I intend to remain, but not until retirement," 4.4% for "Not sure," and 6.7% for "I intend to leave, but if I could change rates I would stay.").

The career intentions variables from the various surveys were recoded into 3-point variables for New Sailor, RTC Graduate, "A" School, and Fleet surveys. These recoded variables reflected those who would stay in (recoded as 1), were uncertain about their career intentions (recoded as 2), or leave (recoded as 3). For the New Sailor, RTC Graduate, and "A" School measures, response option: *"To complete training in a trade or skill, then leave the Navy before my obligation is complete",* was coded as an intention to leave; response options: *"I intend to stay in but not until retirement"* and *"To make the Navy a career ...then leave the Navy",* were coded as intentions to stay; and option: *"I am not sure of my plans"* was coded as uncertain. The additional response option on the New Sailor Survey: *"To leave the Navy as soon as possible"* was coded as an intention to leave.

For the Fleet Survey, response options: *"I intend to remain in the Navy until I am eligible to retire"* and *"I intend to stay in but not until retirement",* were recoded as intentions to stay; response options: *"I intend to leave, but if I could change my rate (job) I would stay"* and *"I intend to leave the Navy as soon as I can",* were recoded as intentions to leave; and response option: *"I'm not sure what I intend to do*", was recoded as uncertain. Response option: *"I would like to stay in the Navy but am barred from staying",* was coded as missing.

A repeated measures one-way analysis of variance and a Hotelling's T^2 were performed on these recoded measures of career intent, comparing career intent across these four surveys. The analysis of variance showed that there is an overall difference between these means ($F = 109.34$; $df = 3, 1603$; $p < .0001$); the results from Hotelling's T^2 indicates that at least one of these means was different from the rest ($F = 74.97$; $df = 3, 398$; $p < .0001$). The means and standard errors of the mean for this analysis indicate that three of the four groups were significantly different from each other ($M_{ns} = 1.48$, $SE = .025$; $M_{rtc} = 1.53$, $SE = .026$; $M_{as} = 1.63$, $SE = .031$; $M_{fleet} = 2.13$, $SE = .039$). The means for the New Sailor and RTC respondents were not significantly different. Examination of these means indicate that while both RTC and "A" School respondents are, on the average, inclined to report an intent to stay in the Navy, the Fleet respondents are much more unsure of their career plans.

Organizational Commitment

Organizational commitment was measured on the RTC Graduate, "A" School, and Fleet Surveys using a modified version of the Meyer and Allen (1991) organizational commitment scale. Space restrictions in the surveys and time restriction for administration of the surveys necessitated reducing this scale to the minimum possible number of items. Previous work in a military setting has successfully used a truncated version of the Meyer and Allen scales (Heffner & Gade, 2003).

The modified commitment scale was not included in either the New Sailor or Exit surveys. The commitment scales were excluded from the New Sailor Survey because it was administered before new recruits would have sufficient information about the Navy to make a cogent judgment of their commitment to it. The scale was excluded from the Exit survey because it was administered as respondents were being processed out of the Navy.

The Meyer and Allen (1991) conceptualization of organizational commitment divided the overall construct originally into two, and subsequently three, sub-components (Allen & Meyer, 1990). The first of these sub-components is affective commitment (an emotional attachment to the organization), the second is continuance commitment (associated with perceived costs of leaving an organization), and the third is normative commitment (associated with a perceived obligation to remain in the organization).

Pilot work and subsequent factor analyses (accounting for 63.0% of the variance in two factors) indicated that the affective portion of this scale could be measured with five items, and the continuance portion of the scale could be measured with three items, instead of the full compliment of eight items each (see Table A-2 in Appendix A for the items in these scales). The items forming the normative portion of the scale did not hold together as a single factor for this population and was not utilized. Allen (2003) reports a similar finding for normative commitment in a military population.

The affective and continuance subscales, as measured in this study, had high levels of internal consistency (α = .82 for the affective commitment subscale, α = .77 for the continuance commitment subscale). To be computed, four of five items on the affective scale, and two of three items on the continuance scale had to have non-missing values. Scales were computed based on the mean of the non-missing items in the scale.

Measures of affective and continuance commitment were examined in one-way analyses of variance (repeated measures) and Hotelling's T^2, across RTC graduates, "A"/Apprentice School graduates, and fleet respondents. Results from the one-way analysis indicates that for both affective and continuous commitment there were significant differences (F = 289.97; df = 2,996; $p < .0001$; F = 152.00; df = 2, 1004; $p < .0001$, respectively). Hotelling's T^2 indicate that for each of these measures at least one of the means was significantly different from the others (F = 252.59; df = 2, 497; $p < .0001$; F = 120.40; df = 2, 501; $p < .0001$, respectively).

An examination of the means and standard errors of the mean for affective commitment, from the above analysis, indicate that all the means associated with affective commitment were different from one another (M_{rtc} = 4.01, SE = .033; M_{as} = 3.71, SE = .038; M_{fleet} = 3.01, SE = .038), showing that affective commitment was highest at RTC graduation, significantly diminished by "A" School graduation, and was lowest when examined in the fleet.

Examining the means and their standard errors for continuance commitment tells a different story. The means for RTC graduates and "A" School graduates were not significantly different, but both were significantly different from that of fleet respondents (M_{rtc} = 3.64, SE = .044; M_{as} = 3.56, SE = .044; M_{fleet} = 2.78, SE = .048), and show that while continuance commitment demonstrated a drop between RTC and "A" School (though not significantly so), it tends to remain fairly strong throughout training. However, after arrival in the Fleet, continuance commitment to the Navy begins to diminish substantially and reliably.

Independent groups t-tests examined whether RTC, "A" School, and Fleet Survey respondents who remained in the Navy 12 months after survey administration, were different from those who attrited over these same time periods, on measures of affective and continuance commitment. Results show that those who attrited within 12 months of taking the RTC Graduate, "A" School, and Fleet Surveys reported significantly lower affective commitment than those who remained over those 12 month periods ($M_{rtc\text{-}att}$ = 3.72, $M_{rtc\text{-}rem}$ = 3.95, t = 9.78, df = 1874, p < .001; $M_{as\text{-}att}$ = 3.39, $M_{as\text{-}rem}$ = 3.62, t = 5.261, df = 562, p < .001; $M_{f\text{-}att}$ = 2.53, $M_{f\text{-}rem}$ = 2.95, t = 13.08, df = 1009, p < .001). However, for continuance commitment only responses from RTC and Fleet surveys were significant across attrites and non-attrites ($M_{rtc\text{-}att}$ = 3.63, $M_{rtc\text{-}rem}$ = 3.72, t = 3.28, df = 1889, p = .001; $M_{f\text{-}att}$ = 2.41, $M_{f\text{-}rem}$ = 2.80, t = 9.56, df = 1007, p < .001), showing those who remained reported significantly higher levels of continuance commitment at the time of survey administration.

Person Organization (P-O) Fit

Two different measures of P-O Fit were designed for this study. The first (the Navy P-O Fit Scale) was designed for the First Watch instruments administered in the Navy training commands (New Sailor, RTC Graduate, Exit, and "A" School Surveys). The measure of P-O Fit that was used in these surveys was designed using the Navy's performance appraisal form for E-1 to E-6 Sailors (Evaluation Report and Counseling Record (E1-E6) (NAVPERS 1616/26 (7695)). This form asks for evaluations on seven basic constructs, of which six were used as the basis for the Navy P-O Fit Scale. These six constructs were: (1) Quality of Work, (2) Respect for Others (Equal Opportunity), (3) Military Bearing/Character, (4) Personal Job Accomplishment/Initiative, (5) Teamwork, and (6) Leadership. The evaluation is based on a 5-point scale, of which the center point represents a "meets standards" verbal anchor.

A large pool of items was created from this evaluation form, with each item created to represent some aspect of one of the six constructs described above. Each of the items constructed for this scale was structured around the mid-point ("meets standards") of the original response scale. These items were pilot tested with senior enlisted Sailors and a small group of new recruits; 32 of the original items were found acceptable for use

and were included on the Navy Fit Scale. Factor analyses conducted with these 32 items revealed that fit was best represented by 5 subscales using 30 of the 32 items (the factor analysis accounted for 53.1% of the variance). These subscales were renamed from the constructs described above to better reflect their content. The subscales and an example of an item from each subscale are presented in Table 6. The items making up the entire Navy P-O Fit Scale is presented in Appendix A, Table A-3. Alpha coefficients for four of these five subscales ranged from .76 to .86 (the fifth subscale, "Teamwork," had an alpha of .54). The items for these scales used a 5-point response scale ranging from 1 *(Never true of me*) to 5 (*Always true of me*). Scales were computed based on the mean of the non-missing items in the scale.

Table 6
Subscales and examples of items comprising the Navy P-O Fit Scale

Subscale	# of items	Example
Military Bearing[a]	7	I try to stay out of trouble
Decision-making[a]	7	When things are falling apart I still make good decisions
Respect for Others[b]	5	I am tolerant of other people
Teamwork[c]	3	I enjoy being part of a team
Work Ethic[d]	8	I try to do jobs carefully, so they don't have to be done again

[a]Subscale score computed if 6 of 7 items had non-missing values.
[b]Subscale score computed if 4 of 5 items had non-missing values.
[c]Subscale score computed if 2 of 3 items had non-missing values.
[d]Subscale score computed if 6 of 8 items had non-missing values.

A single measure of overall P-O Fit was computed from the means of these five subscales. The overall Navy P-O Fit scale had an alpha coefficient of .88. Three of the five subscales had to have non-missing values for the overall P-O Fit measure to be computed.

Figure 5 compares the mean New Sailor P-O Fit subscales and overall scale scores for RTC graduates and attrites. Independent groups *t*-tests conducted on the means of these measures show that three of the six (overall P-O fit, Military bearing, and Teamwork) are significantly different ($p < .008$, adjusted for multiple independent comparisons; see Table 7 for *t*, *df*, and actual significance levels). The Decision Making, Respect for Others, and Work Ethic subscales failed to reach significance ($p > .008$). These results indicate that even at the time that recruits entered training, there were discernable differences in Navy P-O Fit between eventual RTC graduates and attrites.

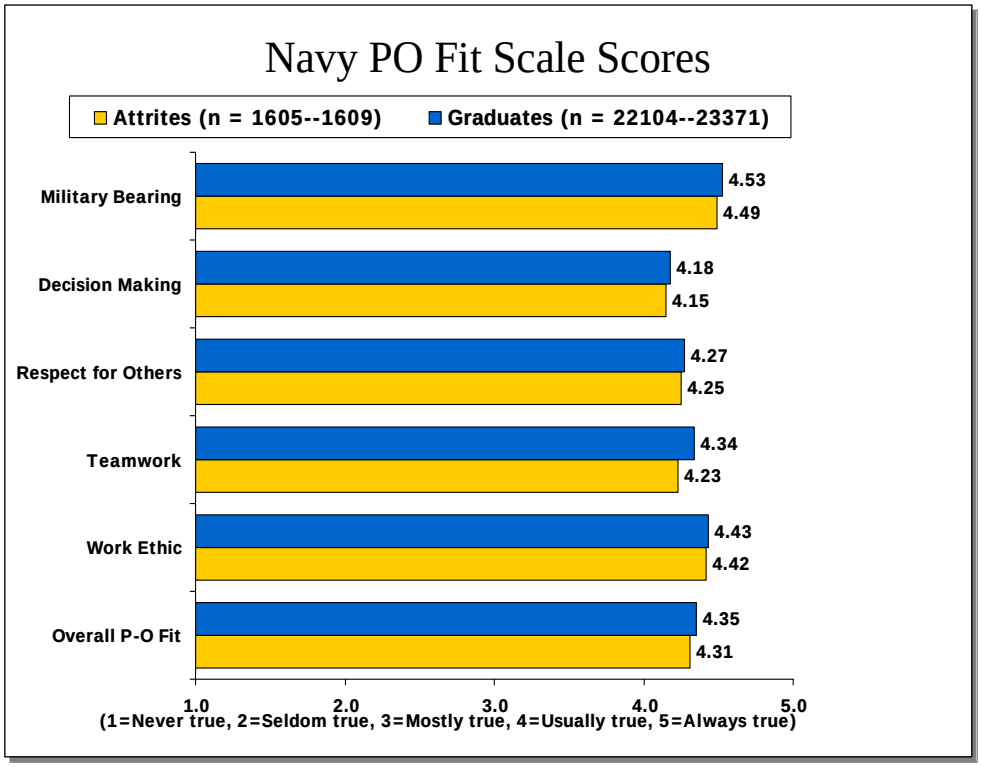

Figure 5. Mean P-O Fit scale and subscale scores for RTC graduates and attrites.

Table 7
Mean values and *t*-test scores for RTC graduates and attrites on P-O Fit Subscales and Overall P-O Fit

	M	SD	T	df	p
Military bearing					
Attrites	4.49	0.499	4.45	4186	<.001
Graduates	4.53	0.453			
Decision Making					
Attrites	4.15	0.620	2.61	4193	.009
Graduates	4.18	0.577			
Respect for Others					
Attrites	4.25	0.605	1.73	4239	.083
Graduates	4.27	0.567			
Teamwork					
Attrites	4.23	0.719	9.49	4213	<.001
Graduates	4.34	0.656			
Work Ethic					
Attrites	4.42	0.524	0.712	4262	.476
Graduates	4.43	0.497			
Overall P-O Fit					
Attrites	4.31	0.487	4.97	4222	<.001
Graduates	4.35	0.448			

Note: 1 = Never true, 2 = Seldom true, 3 = Mostly true, 4 = Usually true, 5 = Always true

The overall measures of P-O Fit from the New Sailor, RTC Graduate and "A" School Surveys were examined with a one-way analyses of variance (repeated measures) and Hotelling's T^2. Results from the one-way analysis indicates that there were significant differences across means ($F = 267.94$; $df = 2, 7646$; $p < .0001$). Hotelling's T^2 indicates that at least one of the means was significantly different from the others ($F = 223.21$; $df = 2, 3812$; $p < .0001$). Examination of the means and associated standard errors indicate that the means of the measures of P-O Fit from the New Sailor and RTC Graduate Surveys were not significantly different, but that the "A" School Survey measure of P-O Fit was different and reliable lower than both those from the New Sailor and RTC Graduate Surveys ($M_{ns} = 4.36$, $SE=.007$; $M_{rtc} = 4.35$, $SE=.006$; $M_{as} = 4.22$, $SE=.008$).

An additional series of t-tests was performed on these data examining P-O Fit for RTC and "A" School graduates contrasting those who attrited within 12 months of survey administration, against those who remained in the Navy over that time period.

Results indicate that for those who responded to the RTC Graduate Survey, those who remained in the Navy 12 months after survey administration were significantly higher than those who attrited over that time period, on all measures of P-O Fit (Military Bearing: Mean Attrite = 4.46, Mean Non-attrite = 4.56, df = 1905, t = -7.74, p < .001; Decision Making: Mean Attrite = 4.12, Mean Non-attrite = 4.18, df = 1912, t = 3.46, p = .001; Respect for Others: Mean Attrite = 4.08, Mean Non-attrite = 4.14, df = 1944, t = 3.85, p < .001; Teamwork: Mean Attrite = 4.26, Mean Non-attrite = 4.35, df = 1925, t = 5.14, p < .001; Work Ethic: Mean Attrite = 4.45, Mean Non-attrite = 4.51, df = 1937, t = 3.71, p < .001; Overall Fit: Mean Attrite = 4.27, Mean Non-attrite = 4.34, df = 1920, t = 5.90, p < .001).

Results from the "A" School Survey indicate that those who remained in the Navy 12 months after survey administration were significantly different from those who attrited over that time period, on only one measure of P-O Fit. Only Military Bearing proved significant across attrite and non-attrite groups (Mean Attrite = 4.36, Mean Non-attrite = 4.44, df = 570.15, t = 3.26, p = .001)

The second, and much shorter measure of P-O Fit, was designed for and administered in the Fleet Survey. Because of space and time restriction for administration of the Fleet Survey, the measure of P-O fit was summarized into three omnibus items designed to measure the Sailor's overall fit with the Navy (see Appendix A, Table A-4). The response scale for these items ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

A factor analysis was performed on these items and revealed a single factor accounting for 73.7 percent of the variance. An analysis of internal item consistency for these items resulted in an alpha coefficient of .82. Two of three items in this scale had to have non-missing values for the scale to be computed. This scale score was based on the mean of the non-missing items in the scale.

An independent groups t-test was performed on this measure of P-O Fit, broken out by those who had attrited over the 12 months after survey administration and those who remained over that same time period. Results showed that fleet attrites had reliably lower levels of P-O Fit, on the Fleet Survey, than those who remained in the Navy 12 months after survey administration ($M_{f\text{-}att}$ = 2.51, $M_{f\text{-}rem}$ = 3.01, df = 1003, t = 12.91, p < .001).

Person-Job (P-J) Fit

In this study P-J Fit was measured only on the Fleet survey, as it was the first time a Sailor would be performing the duties that could be considered his/her actual Navy job. P-J Fit was measured with three items designed to describe, in general, a junior Sailor's fit with the job for which he/she was rated (see Appendix A, Table A-5, for a list of these items). The response scale for these items ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

A factor analysis was run on these items and revealed a single factor accounting for 75.6 percent of the variance. A measure of internal item consistency for the three items resulted in an alpha coefficient of .84, and the three items were used in this study as a single scale measuring P-J Fit. Two of the three items had to have non-missing values for the scale to be computed. This scale score was based on the mean of the non-missing items in the scale.

An independent groups *t*-test was performed on the overall measure of P-J fit, broken out by those who had attrited over the 12 months after survey administration and those who remained over that same time period. The results showed that those who left the Navy in the 12 months after survey administration reported substantially lower levels of P-J Fit than those who remained ($M_{f\text{-}att}$ = 2.91 and $M_{f\text{-}rem}$3.25; t = 8.52, df = 1002, $p < .001$).

Person-Group (P-G) Fit

In this study P-G Fit was measured only on the Fleet Survey because that was the first time that the Sailor was performing a Navy job in a typical Navy work group. P-G Fit was measured with seven items examining conditions in a typical Navy work group (see Appendix A, Table A-6 for a list of the items). The response scale for these items ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

A factor analysis was run on these items and revealed a single factor accounting for 45.7 percent of the variance. A measure of internal item consistency of the seven items resulted in an alpha coefficient of .80. Five of the seven items making up this scale had to have non-missing values for the scale to be computed. This scale score was based on the mean of the non-missing items in the scale.

An independent groups *t*-test was performed on the overall measure of P-G Fit, broken out by those who had attrited over the 12 months after survey administration and those who remained over that same time period. The results showed that those who left the Navy had significantly lower levels of P-G Fit, at the time of survey administration, than those who remained ($M_{f\text{-}att}$ = 3.40 and $M_{f\text{-}rem}$ = 3.54; t = 5.57, df = 1005, $p < .001$).

Job Satisfaction

Job satisfaction was measured for the first time on the Fleet Survey because this was the first time that the Sailor was performing a Navy job, rather than a position in a training command. Job satisfaction was measured using a 6-item scale developed specifically to reflect elements of the job and life circumstances for a first-term Sailor. The job satisfaction items were evaluated using a 5-point, Likert-type scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*).

Factor analysis of the six items revealed that there were two underlying factors represented in the scale. Two items that did not specifically reflect the aspects of the job ("I get along with my immediate supervisor" and "I get enough sleep at night") were deleted from the scale. Factor analysis on the four remaining items resulted in a single factor accounting for 56.3 percent of the variance. An analysis of the internal consistency of these items revealed an alpha coefficient of .73 (see Appendix A, Table A-

7, for a list of the four items making up this scale). To be computed three of the four items had to have non-missing values. The Job Satisfaction scale score was based on the mean of the non-missing items in the scale.

An independent groups *t*-test was performed on the overall measure of Job Satisfaction, broken out by those who had attrited over the 12 months after survey administration and those who remained over that same time period. The results show that respondents who left the Navy had significantly lower levels of job satisfaction, at the time of survey administration, than those who stayed ($M_{f\text{-}att}$ = 2.96 and $M_{f\text{-}rem}$ = 3.25, respectively; t = 8.56, df = 1012, $p < .001$).

Conclusions and Recommendations

RTC Attrition

The positive influence of relatives, friends, and RDCs was found to be significantly associated with graduation from recruit training. Those who reported that these sources of social support influenced them to stay in recruit training were more likely to actually complete the training. While none of these sources of influence seem to have systematically influenced the recruit to terminate his/her training, RTC attrites seem to have less support to stay with the training than RTC graduates. These associations suggest that increasing the support from significant others during recruit training may increase the probability of recruits completing their training.

Also, even at the earliest stages of a Sailor's career, there are some indicators that seem to be related to first-term attrition. On the first day of recruit training, eventual RTC graduates felt more social pressure about completing their enlistment, felt significantly more strongly about completing their enlistment, were more positive about the Navy as a career choice, and recommending the Navy to a friend or family member than eventual RTC attrites.

This indicates that there are systematic differences between eventual RTC graduates and attrites very early in a recruit's first term. This suggests that future work examining first term attrition, particularly RTC attrition, may need to focus some research effort as far back as the DEP.

Post- training Attrition

First term attrition was examined for the 12 months after RTC and "A"/Apprentice School graduation. While few variables predicted attrition after "A"/Apprentice School, numerous variables predicted attrition in the 12 months following RTC graduation. The extent to which the respondent's expectations were met, their training experiences in RTC, levels of stress and morale while in RTC, Navy career intentions measured at the end of RTC, continuance and affective commitment at the end of RTC, and the RTC graduates' perception of their P-O fit, all predicted attrition in the 12 months following the administration of the RTC Graduate Survey.

This emphasizes the importance of the RTC experience, not just in predicting RTC attrition, but also in first-term attrition, after RTC. Future research should strive to determine the exact association between each of these variables and the manner in which they effect post-RTC attrition.

Fleet Attrition

Research presented in this paper identified a number of variables that were shown to predict attrition in the 12 months after the Fleet Survey was administered. Variables such as perception of how well RTC prepared the respondent for the fleet, how well the Sailor's fleet experiences met his/her expectations, the Sailor's level of stress and morale after arriving in their fleet job, their perceived overall fit with the Navy, as well as their group and job fit, job satisfaction and career intentions all significantly predicted attrition in the fleet. Like the variables predicting post RTC attrition, the manner in which these variables might combine together to predict fleet attrition is not currently known. Similar to the recommendation made for post-training attrition above, future research should strive to determine the exact association between each of these variables and the manner by which they effect fleet attrition.

In Conclusion

While this research has identified a number of variables that were significantly associated with success in RTC and with attrition later in first-term, how these variables interact with each other to clearly explain first-term attrition is a matter that must be further explored. What is needed is the development of integrated models that show how the variables described in this paper actually combine to predict first-term enlisted attrition in the Navy. These models may well be an important step in the actual prediction of levels of first-term attrition, prediction that may assist the Navy in actually intervening in attrition *before* attrition levels actually begins to increase. Future research should develop and test such models with the goal of producing a tool that will allow Navy decision makers the option of managing levels of first-term attrition within a given parameter of readiness and resources, rather than being forced to respond to it after the fact.

Also, throughout this paper many measures associated with first-term attrition change substantially as the recruit/Sailor moves through his/her first term in the Navy. For instance, fleet measures of organizational commitment, intentions to remain in the Navy, and morale were substantially lower than the same measures examined at the end of RTC and "A"/Apprentice School, while stress was reported as substantially higher. This pattern of results suggests that predictors of first-term attrition may interact dissimilarly at different times in Sailor's first term. Therefore, while developing integrated models of first-term attrition is needed, it seems likely that unique models may have to be developed to explain and predict attrition at each critical point in the Sailor's first term.

While results have been described in this paper that provide insight into the root causes of attrition, determining and explaining the root causes of first-term attrition is a complicated matter. In the final analysis, much research into the nature of first-term attrition in the Navy still remains to be done.

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Appendix A:
Items by Scale

Table A-1
Training experience scale items

	Items
RTC Graduate, Exit, and "A" School Surveys	Your level of self discipline Your level of self confidence Your ability to cope with stress Your ability to lead Your ability to succeed in the Navy Your level of physical fitness Your motivation Your ability to manage your financial affairs Your military bearing Your study habits*
Fleet Survey	RTC training taught me the discipline needed in the Navy RTC training taught me the Navy's core values My Navy training at RTC prepared me well for Navy life The Battle Stations exercise prepared me for the stresses that happen in the fleet

*This item was only asked on the "A"/Apprentice Schools Grad survey.

Table A-2
Organizational Commitment

	Items
Affective	I would be very happy to stay in the Navy until I'm eligible for retirement I do not feel "part of the Navy family" (R) I do not feel "emotionally attached" to the Navy (R) The Navy has a great deal of personal meaning for me I do not feel a strong sense of belonging to the Navy (R)
Continuance	Too much in my life would be disrupted if I decided I wanted to leave the Navy now It would be too costly for me to leave the Navy right now I feel that I have too few options to consider leaving the Navy right now I enjoy the camaraderie in the Navy I am dedicated to serving in the Navy

Table A-3
Navy P-O Fit scale items for New Sailor, RTC Graduate, and "A" School surveys

Subscale	Items
Military bearing	I try to stay out of trouble
	I try to set a good example for others
	I try to follow my conscience
	I try to do what I think is right
	I try to get the job done
	When I make a commitment, I can be counted on to follow through
	I try to be considerate of others
Decision Making	I consider the consequences before I take action
	When things are falling apart, I still make good decisions
	I have often been the leader of groups I have belonged to
	I encourage others to do their best
	When I have a problem, I stop and think about it before taking the next step
	I have a clear set of goals
	I usually keep a clear head in emergencies
Respect for Others	I am tolerant of other people
	I take a personal interest in the people I work with
	I like most people I meet
	I try to help people who are less fortunate than me
	I get along with others
Team Work	I like to play sports
	I enjoy being part of a team
	A team is more important than the individuals on it
Work Ethic	I try to do jobs carefully, so they won't have to be done again
	I strive for excellence in everything I do
	I pay close attention to details when I'm working
	I am very resourceful in getting the job done
	I keep my belongings neat and clean
	I like to keep a neat appearance
	I try to finish all the tasks assigned to me
	Once I start a project, I almost always finish it

Table A-4
Fleet Survey Navy P-O Fit scale items

- I am the right type of person for the Navy.
- The Navy offers me just about everything I want.
- The Navy is a good match for me.

Table A-5
Fleet Survey Person-Job (P-J) Fit scale items

- I am the right type of person for this work.
- My job is a good match for me.
- This job allows me to do the kind of work that I want to do.

Table A-6
Fleet Survey Person-Group (P-G) Fit scale items

- My coworkers and I work well together.
- As a group, my coworkers and I work together to get our tasks done.
- My work often does not get done because of my co-workers.
- My co-workers tend to be somewhat unfriendly to me. (R)
- My values are different from those of my coworkers. (R)
- I can rely on members of my workgroup for help at work.
- I do not feel like a part of my workgroup. (R)

Note: (R) indicates that a negatively-worded item was reverse-scored.

Table A-7
Fleet Survey Job satisfaction scale items

- I am happy with my current rate.
- I am happy with my current assignment duties.
- I am currently doing the job I was rated to do.
- I would like to change my rate.

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