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MEN AND WOMEN IN SHIPS: PRECONCEPTIONS OF THE CREWS

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SUMMARY

Problem

The Federal Code was amended in October 1978 to permit the assignment of women to noncombatant ships. This significant change from tradition is welcomed by some personnel and resented by others. Gender integration is also likely to bring with it personnel problems never before faced. Since the number of women in ships is expected to double during the next 2 years, an appraisal of the process of integrating women into this unique environment is needed.

Purpose

The findings from the first phase of a longitudinal study designed to evaluate gender integration of Navy ships are presented herein. The purpose of the preintegration phase was to measure attitudes and expectations of men and women assigned to ships prior to the women coming aboard. Factors hypothesized to be associated with predispositions toward integration were examined. Findings of the preintegration study will be used as baseline measures to assess attitudinal changes and identify conditions and personnel characteristics affecting the assimilation of women into crews.

Approach

Gender-specific versions of the "Navy in Transition" questionnaire (preintegration form) were developed to measure attitudes and expectations of personnel prior to women reporting aboard. The surveys were administered to 346 women assigned to six ships and to 1,936 men serving aboard five of those ships. An additional 483 men assigned to a ship not scheduled for integration completed the questionnaire for control purposes.

Responses were analyzed to determine subgroup (i.e., pay grade, department, age, gender) attitudes toward integration. Also, items were included to identify major concerns and areas that may impede a smooth integration.

Findings and Conclusions

1. The majority of men felt that integration would have a positive effect on crew morale and a negative impact on discipline and relationships between Navy men and spouses ashore. They also felt that it would create jealousy and conflicts among the men. The greatest concern of the lower-ranking men was that women would receive preferential treatment, particularly in job assignments, physically demanding work, and disciplinary actions.

2. The most egalitarian attitudes toward women and favorable expectations about integration came from men in the medical/dental and administration departments where women are traditionally found ashore. More traditional attitudes and opposition came from men in the aviation, weapons, and engineering departments where women have not worked and where the work is often physically strenuous. Although men in supply departments held traditional attitudes, they were optimistic toward integration.

3. The lower-ranking men, despite their traditional attitudes toward women, were in favor of a mixed-gender crew. Both the commissioned officers, who expressed contemporary attitudes toward the roles of women, and the chief petty officers, who appeared neutral in their views on women's roles, preferred the status quo.

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4. Ship differences were evident among the men. Those aboard the last of the six ships to be integrated were the most traditional and negative.

5. Although generally optimistic, women were concerned with profanity, having to prove themselves, and resentment from men. Female petty officers were more pessimistic than were the nonrated women regarding equal treatment and acceptance of women officers.

6. As the women assigned to the six ships had similar expectations and attitudes, assimilation will be dependent on intervening experiences on board each ship.

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INTRODUCTION

Problem and Background

Since November 1978, the United States Navy has been integrating women into the crews of noncombatant surface ships. Prior to that time, Section 6015 of Title 10, U.S. Code restricted the assignments of women to shore stations or duty aboard transports and hospital ships. Since such ships are rarely components of the active fleets except in time of war, women were effectively prevented from serving at sea.[1]

Over the past decade, several efforts were made to repeal or amend Section 6015 to permit the Navy more flexibility in managing its personnel resources (H.R. 15558, 21 June 1974; H. R. 58, 14 January 1975; Civil Action No. 76-2086 in U.S. District Court, District of Columbia, November 1976). In Public Law 95-485, a rider to the FY 1979 Department of Defense Appropriation Authorization Act, the language was modified as follows:

> Women may not be assigned to duty in vessels or aircraft that are engaged in combat missions nor may they be assigned to other than temporary duty on vessels of the Navy except for hospital ships, transports, and vessels of a similar classification not expected to be assigned combat missions.

While this amendment is still restrictive, it permits the assignment of women to permanent duty aboard ships classified as auxiliary or support craft, in accordance with SECNAVINST 5030.1J.

The decision to put women aboard naval auxiliary and support ships has not been accepted without controversy. Many saw the change as an equal opportunity issue and warned that the defense of the nation was being put in jeopardy (Webb, 1979). In contrast, others stated that the expansion in the numbers and roles of military women was a pragmatic response to the shortage of eligible men--a shortage brought about by the declining birthrate during the 1960s and the demise of the draft (Kelly, 1979; Landrum, 1978; Segal, Bachman, & Dowdell, 1978).

The amount of difficulty the Navy was expected to experience in integrating ships was also a topic of conjecture. Some Navy wives and active duty personnel feared the sociosexual repercussions from men and women spending long hours and days together within the confines of a ship (Graichen, 1977; San Diego Evening Tribune, 11 August 1978; San Diego Union, 10 September 1978). Men serving in the Navy, it was predicted, would resent the intrusion of women into their all-masculine environment (Durning, 1978). Army research (Woelfel & Savell, 1979) suggested that the ubiquity of "salty" language would have a negative effect on women's job satisfaction. Quigley (1977) felt that a shortage of woman enlistees would develop because supposedly comfort-loving American women would not join the Navy if they had to endure the discomforts of duty at sea.

A review of the military and civilian literature suggested that integrating Navy ships would result in additional problems due to the nontraditional nature of many of the jobs

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[1] Z-gram 116 lead to the transfer of USS SANCTUARY, a hospital ship, from the inactive to active fleet and permitted women to be assigned to the crew. Thus, for about 1 year, 120 women served at sea in an experimental situation.

the women would be doing and the ratio of women to men in the crew. O'Leary (1974) identified several difficulties encountered by women who engage in work considered more appropriate for men. First, women suffer role conflict because feminine traits are often maladaptive in the work situation. Second, success on the job does not necessarily have a desirable outcome. O'Leary states:

> If female success is depicted as occurring in an environment in which female participation is as frequent as male participation, males tend to react favorably to this success; when success is associated with "deviant" female stereotypic sex role inappropriate behavior, males react punitively. (p. 810)

Hinsdale, Collier, & Johnson (1978), in their study of Navy women, found that masculine personality traits were positively related to satisfaction and reenlistment intention of those in nontraditional jobs. In a related study, however, Hinsdale and Johnson (1978) reported that co-workers became disenchanted with masculinity in females, whereas superiors found femininity in either gender unacceptable. Durning (1977) surveyed 361 Navy women in various ratings and found that those working in nontraditional jobs differed significantly from those in traditional jobs in that they: (1) felt discriminated against because of their sex, (2) experienced difficulty in performing their jobs because of negative male attitudes, (3) felt they had to prove themselves, (4) were more dissatisfied with their relationship with their supervisor, and (5) were less satisfied with the progress they had made in the Navy. Vail's (1978) study of 317 female enlisted personnel in 12 Navy units revealed that working in nontraditional jobs exerts its toll. She found that the women in masculine work roles exhibited higher levels of anxiety than did those working in typically feminine jobs even though there was no evidence that their male co-workers were behaving in a hostile way. Vail's results also support those of Durning in that women in nontraditional work roles perceived their supervisors to be significantly less supportive than did women in traditional roles.

The optimal proportion of women in the crew is of concern to Navy planners, not only because of the problems associated with minority/majority group dynamics, but also, because of the critical issue of military effectiveness. Kanter (1977) developed a conceptual framework of the interactions that occur in skewed organizations having 20 percent or less representation of an obviously different group. She conceptualized that the numerically dominant group exercises control over the culture in the workplace and the members of the minority group are not treated as individuals, but rather as symbols--or what she called "tokens" of their class. Further, the token effect is heightened when the minority group is physically obvious and the majority group is used to interacting with the minorities in ways quite different from those required by the job situation. Obviously, both of these conditions exist when integrating women into ships. Kanter also identified three perceptual phenomena associated with being a token: (1) high visibility, (2) polarization or exaggeration of the differences between the dominants and tokens, and (3) assimilation or the use of stereotypes to generalize the behavior of the tokens. Each of these phenomena impacts on intergroup dynamics and results in identifiable response patterns. Kanter presented evidence to demonstrate that visibility leads to performance pressure for the tokens, that polarization heightens the boundaries between the groups, and that assimilation results in role entrapment. Yoder, Adams, and Prince (1980) reported that all of these processes and their consequences were operating among the first group of West Point plebes to include women.

The impact on mission accomplishment of different proportions of women was investigated in the massive MAX WAC and REFORGER projects (Johnson, Cory, Day, Oliver et al., 1978; U.S. Army Research Institute, 1977). Forty Army companies were

involved in the first study, eight each in maintenance, signal, military police, medical, and transportation. An intensive 72-hour field exercise evaluating each group's ability to perform a minimum of 14 mission-related tasks was used as the performance measure. Five teams of judges, one for each type of unit, were assembled and trained to score the exercises. The percentage of women in the experimentally controlled companies was 0 or 15 percent at the first testing and 15 or 35 percent when the companies were retested 6 months later. The results indicated that increasing the number of women up to 35 percent had no effect on company performance. Critics of the MAX WAC study contended that a 72-hour field exercise was an inadequate measure of the ability of women to perform in combat. Accordingly, researchers were tasked to evaluate women during a 10-day Army field test in West Germany (REFORGER). Comparisons were made between the performance of all-male and mixed-gender groups and that of enlisted females and their matched male controls. Again, the presence of women did not impair the performance of the unit's mission. On the daily performance ratings of individuals, women's scores were significantly lower during the first 3 days of the exercise but equal to the men's in the last 3-day segment.

This research literature was used as guidance by those making the careful preparations for mixed-gender crewing of Navy ships. The detailed, chronological plan that was developed[2] established a minimum ratio of one woman to every three men aboard the initial ships. The Women in the Navy Information Book, prepared to assist commanding officers of ships receiving women, presented summaries of the "lessons learned" from research conducted during the integration of other male military environments and information concerning Navy regulations that apply solely to women (Naval Military Personnel Command, 1979). "Women to Sea" workshops were given by trained personnel from the Navy's Human Resource Management (HRM) Centers to the crews of ships being integrated and to the women being assigned. Meetings were held with Navy wives' ombudsmen and the spouses of crewmembers to keep them informed of the plans and try to allay their fears.

A system to monitor indices of personnel effectiveness during the transition was established. The commanding officer of each integrating ship was tasked to submit a quarterly report to the Chief of Naval Personnel presenting, by gender, manning levels, performance ratings, disciplinary actions, medical events, and lost time rates. It was recognized, however, that such data would not provide insight into the process of integration nor an understanding of why intergration proceeded with relative ease on some ships, while others experienced more difficulty. For these reasons, the Navy Personnel Research and Development Center was directed to design and conduct a research study to investigate the more subjective aspects of integration.

Objectives

The objectives of this study were to: (1) determine the effect that the background and preconceptions of crew members have on gender integration measures, (2) identify the organizational and situational factors that affect the measures of personnel effectiveness being monitored by the quarterly reports, and (3) observe the actual performance of women aboard ships and their assimilation into the crews. Results were to be used in developing recommendations to ease the integration of females aboard future ships.

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[2]Structured Plan to Facilitate Implementation of Amendment of Section 6015, Title 10, U.S.C., 1977.

This report is limited to the preintegration phase of the study, which will be used as a basis of postintegration comparison.

PROCEDURE

Hypotheses Being Tested

The following four hypotheses were developed for testing with the preintegration survey:

1. Hypothesis 1. Men in the engineering, deck, weapons, aviation, and repair departments will hold traditional attitudes toward women and have the least positive attitudes toward the integration process. This hypothesis is based on Kanter's (1977) observations that the dynamics of tokenism are heightened in groups where men have had little experience working with women.

2. Hypothesis 2. Men in ships being integrated will be more likely to accept women in various work roles and will hold fewer stereotypic beliefs about feminine characteristics than will men in the control ship. This hypothesis is predicated on the belief that the workshops preparing the former group for mixed-gender crews at sea would have a positive effect on their attitudes.

3. Hypothesis 3. Men in the higher pay grades, in contrast to those in the lower pay grades, will hold more traditional attitudes toward women and perceive that the impact of gender integration on the ship will be somewhat negative. This hypothesis is based on the belief that men who have been in the Navy longer are more tradition-bound and are less likely to accept change. Also, such men are older and have not shared the experiences of their younger subordinates in integrated physical education classes and other recent changes in secondary education that have deemphasized gender-appropriate curricula.

4. Hypothesis 4. Survey responses of women being assigned to the six ships will not differ, except for those differences that can be accounted for by virtue of pay grade, age, or volunteer status. This hypothesis is being tested as a preliminary step for investigating any differences that may be found in the attitudes of women after integration.

Description of Questionnaire

Two preintegration forms of the "Navy in Transition" questionnaire, one for each sex, were developed specifically for this study. They were designed to collect biographical data, measure attitudes presumed to be related to the social dynamics of integration, and identify factors that could impede organizational effectiveness or individual adaptation. The items given to both men and women address: (1) attitudes toward women, their role in society and in the Navy, (2) anticipations about the treatment of women (i.e., discrimination/favoritism), and (3) concerns over male-female interactions. The men's form contains additional items focusing on the personal as well as global impact expected to result from the addition of women. The women's form includes additional items pertaining to preparation for, and adaptation to, shipboard duty, previous experiences in predominantly male environments, and supervisory experience.

Data Collection

Although the research effort was designed to include the first ten Navy ships having enlisted women in their crews, women had already been assigned to USS VULCAN and USS L.Y. SPEAR when funding was received. Since the research design called for the administration of the questionnaire prior to the assignment of women to the ship, these two ships were not included in the preintegration data base. Additionally, the type commander for two submarine tenders refused to grant permission for the questionnaire to be administered to the crews. Thus, only six of the ten ships participated in the first phase of the study.

The data collection began in February 1979 when the crew of one ship (Ship #1) took the survey while enroute to their homeport. The men in each subsequent ship were surveyed just prior to the women's reporting date, ending with the last ship in July 1980. The survey was administered to five of the six crews by military personnel who were attached to the research team or were conducting "Women in the Navy" workshops. One ship, however, assumed responsibility for giving the men's survey and failed to obtain an adequate or representative sample. Thus, the men from this ship (#3) were omitted from the analysis, although the women were retained.

A civilian member of the research team administered the survey to the women assigned to five ships while they were attached to a Fleet Training Center (FTC) for a 2-week shipboard preparation course. The women assigned to the sixth ship were surveyed at two locations; the recent recruit graduates during apprentice training at Orlando, Florida and the others at the Fleet Training Center in Norfolk, Virginia after a brief shipboard orientation course.

A submarine tender that was not scheduled for integration during FY 1979 or 1980 served as the control ship. A modified version of the "Navy in Transition" questionnaire was administered to the men in its crew in August 1979.

Sample

The sample consisted of 1,936 men serving aboard five Navy ships, 438 men serving aboard the control ship, and 346 women being assigned to six ships. The distribution of respondents by ship, pay grade, and gender is presented in Table 1. The 1,936 surveyed men on integrating ships represented 48 percent of the total on-board count. In this report, the ships are identified numerically in the order they were surveyed, which is also the order in which they were integrated.

Table 1

Distribution of Sample by Ship, Pay Grade, and Gender

Pay Grade	Percentage by Ship 1	2	3[a]	4	5	6	Total N	%	χ^2
Integrating Ships									
Men									
E-1--E-3	39	46	--	42	30	48	794	41	
E-4--E-6	52	50	--	49	61	44	986	51	
E-7--E-9	6	3	--	4	7	4	101	5	
Officers	3	1	--	5	2	4	55	3	
N	804	141	--	81	308	602	1936		35.279*[b]
Percentage of on-board count	70	38	--	37	35	43		48	
Women[c]									
E-1--E-3	55	67	69	67	82	97	249	75	
E-4--E-6	45	33	31	33	18	3	85	25	
N	73	51	35	43	40	92	334		43.699*
Control Ship									
Men									
E-1--E-3	--	--	--	--	--	--	158	36	
E-4--E-6	--	--	--	--	--	--	223	51	
E-7--E-9	--	--	--	--	--	--	26	6	
Officers	--	--	--	--	--	--	31	7	
N							438		

[a]Men from Ship #3 were omitted from the analysis due to lack of random sampling.

[b]Officers and E-7--E-9 men were combined to compute the chi-square.

[c]Almost all enlisted women in the initial complement reporting aboard took the survey. However, twelve did not report their pay grade.

*p <.001.

Overall, 41 percent of the men on the integrating ships were nonrated (E-1--E-3); 51 percent, petty officers (E-4--E-6); 5 percent, chief petty officers (CPOs) (E-7--E-9); and 3 percent, commissioned officers. As shown in Table 1, there were significant differences in pay grade distributions among ships; specifically, Ships #2 and #6 had greater percentages of nonrated personnel than did the other three ships, while Ship #5 had more petty officers than did all the others. Because of the unequal distribution of CPOs and commissioned officers, some of the intership analyses did not include these pay grades. Because of the percentage of nonrated personnel on board, Ships #4 and #6 had

significantly greater percentages of men currently serving their first term of enlistment than did Ships #1, #2, and #5.

Almost all of the initial complement of women assigned to the six ships responded to the survey. The pay grade distribution for the women was much more limited than for the men. Three-fourths of the women surveyed were nonrated and the remaining one-fourth were petty officers. Three female officers and four female CPOs who answered the survey were not included in the study, because they could easily be identified. The representation of nonrated women by ship ranged from 53 to 97 percent, increasing with the chronological order of integration. Correspondingly, the percentage of first-term enlistees in the sample ranged from 71 to 98 percent. Many of the rated women being assigned to Ships #5 and #6 (the last two ships to be integrated) were not sent to the course designed to prepare them for sea duty and, therefore, were not surveyed. Thus, although nonrated women never exceeded 70 percent of the female crew aboard any ship, these samples have an overrepresentation of nonrated women.

Data Analysis

All data were analyzed using a statistical package for the social sciences (SPSS), Version 8 computer program (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

Factor Analysis

A principal factoring with iteration (PA2) was performed on all attitudinal items common to both male and female versions of the survey. The initial factor solution extracted six factors with eigenvalues greater than one. A Scree test indicated approximately a five-factor solution to be optimal. Items with extremely low communalities were removed and three analyses extracting four-, five-, and six-factor solutions were then examined. The four-factor, varimax-rotation solution was chosen because it allowed for the clearest interpretation and had the lowest item complexities. (Items loading over .30 on each factor are listed in the appendix.) All but one of the items loading over the cutoff point of .30 had a complexity of one.

Based on the factor score coefficient matrices, four factor scores were calculated for each subject. These factors, which accounted for 44 percent of the total variance, are described below:

1. Traditionalism. The items in this factor measure attitudes toward women and their role in society. Responses ranged from those reflecting liberal, egalitarian attitudes (i.e., rejection of traditional beliefs about women) to those reflecting conservative attitudes (i.e., conforming to sex-role stereotypes). This factor accounts for 61 percent of the common variance.

2. Acceptance. This factor includes items evaluating how well women officers are accepted by Navy men, whether men and women are treated equally in the Navy, and the civilian image of Navy women. It accounts for 17 percent of the common variance.

3. Discrimination. This factor assesses the degree of differential treatment of men and women expected when the ship is integrated. It accounts for 15 percent of the common variance.

4. Gender interaction. The items included in this factor reflect feelings about interpersonal aspects of shipboard life, such as living and working with all men, the

prohibition against romance, and preference for friends of either gender. This factor accounts for 7 percent of the common variance.

Analysis of Variance (ANOVA)

Analysis of variance tests (ANOVAs) were performed on the four factors. Also, to identify differences between men in ships being integrated and those on the control ship, (Hypothesis 2), a one-way ANOVA was performed comparing the scores of the control crew with the combined scores of men on the integrating ships.

Using Duncan's multiple-range test (alpha = .05), a posteriori contrasts were conducted to investigate differences among subgroup mean factor scores. In addition, a neutral position for each factor was identified by calculating a hypothetical factor score based on all the individual items within the factor having a neutral response value. A series of t-tests was then performed to determine whether subgroups expressed attitudes differing significantly from neutrality.

Results of ANOVAs were used to test the hypotheses. It was determined that:

1. Hypothesis 1 (men in engineering, deck, weapons, aviation, and repair will hold traditional beliefs and be least positive toward intergration) will be supported if: (a) a significant department effect is obtained for factor 1, (b) the mean factor scores for these departments are significantly distant from the neutral position to indicate traditionallty, and (c) responses to individual impact items for the men in these departments are in the direction hypothesized.

2. Hypothesis 2 (men in ships being integrated will be more likely to accept women and be more positive than will those in the control ship) will be supported if: (a) a significant "control" effect is obtained for factor 1, (b) the mean score on factor 1 for the control ship is more traditional than is that of the integrating ships, and (c) the individual impact items are in the direction hypothesized.

3. Hypothesis 3 (men in higher pay grades will be more traditional and more negative toward gender integration than will those in lower pay grades) will be supported if: (a) a significant pay grade effect is obtained for factor 1, (b) the mean factor scores of the subgroups are linearly distributed with the officers at the "traditional" end of the distribution, and (c) responses to individual impact items are in the direction hypothesized.

4. Hypothesis 4 (women going aboard each ship will have similar attitudes and any differences can be accounted for by virtue of pay grade, age, or volunteer status) will be supported if the two-way ANOVAs of factors 1 through 4 (ship by pay grade) do not yield a significant ship effect. In addition, the chi-squares for the background items categorized by ship will not be significant ($p > .05$), except for those factors that correlate with age.

Chi-square Analyses

Chi-square analyses were used to test for significant differences in responses to the biographical items and the attitudinal items having categorical answers. In addition, certain continuous five- or six-point scales were recoded dichotomously and analyzed as nominal data to aid in the interpretation of the factor scores. Because of the absence of women in the upper pay grades, all comparisons between men and women were based on personnel in pay grades E-1 through E-6. Analyses that include only men were based on male respondents in all pay grades.

RESULTS

Background Differences of the Women and Men

Table 2 presents the results of the analyses of seven background items and indicates whether the distributions differed by gender and within gender by ship. For the chi-square comparisons between women and men, the overall samples were divided into pay grade groups of E-1s to E-3s and E-4s to E-6s, leaving the remaining personnel out of the analysis. The decision to treat the cross-sex data in this manner was based on the very unequal proportions of women and men in the various pay grades and the absence of female commissioned officers and CPOs (see Table 1). Since responses to many of the background items would be expected to differ as a function of age and pay grade, meaningful results could not be obtained by comparing all women to all men. Thus, the percentages in Table 2 represent all of the women and 92 percent of the men (E-1 through E-6 only) taking the survey. When performing the cross-ship analyses, however, the total samples were used.

The results indicate that women were better educated, were less likely to be married, had fewer children, and were more apt to volunteer for sea duty than were men at their pay grade. There were two additional significant gender differences: a greater proportion of the nonrated women were still in their teens and had been in the Navy fewer years than nonrated men.

Women being assigned to the six ships differed from each other on four of the seven variables (i.e., age, years in the Navy, marital status, and volunteer status). The primary reason for this finding lies in the very large proportion of recent recruit graduates going to Ships #5 and #6. Most of these women were unmarried and had been in the Navy less than 1 year.

The men in the crews differed in their responses on four of the background items. For the most part, this was due to the characteristics of the men of Ship #5, who were older, better educated, and had been in the Navy longer than those on the other ships. In addition, men from Ships #4 and #6 were less apt to volunteer for sea duty (if given the choice) than were those in the other crews.

Analysis of Factor Scores

The results of the ANOVAs performed on the four attitudinal factors are presented in Table 3. The independent variables chosen for these analyses were those needed to test the hypotheses (ship, pay grade, department, volunteer status, age, and control) and the effect of gender. The mean scores of variables yielding a significant main effect are presented in the figures within each section, permitting comparisons among subgroups, both within and across variables.[3] The neutral or ambiguous position for each factor with respect to the attitudes being measured is labeled on each graph. Significant subgroup deviations from the neutral position are indicated by asterisks. Some groups having mean scores distant from the neutral point were not significantly different from neutrality due to a large within-group variance. In such cases, the mean score alone does not reflect the wide variability of individual responses within the group and, therefore, should be interpreted carefully.

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[3] Although the 30-39 and 40+ age groups were combined in the gender-by-age ANOVAs to avoid the problem arising from the fact that few women were over 39, these categories are graphed independently in Figures 1-8.

Table 2

Differences in Background of Men and Women by Gender and Ship

Item	Percentage[a] (E-1--E-6) Women (N=334)	Men (N=1780)	χ^2 of Distributions by: Gender E-1--E-3	Gender E-4--E-6	Ship Women	Ship Men
Age Group						
17 to 19	30	13				
20 to 24	50	56				
25 to 29	15	19				
30 and over	5	12	16.605***[b]	2.810[b]	17.010*[b]	46.390***
Educational Level						
12 years or less	69	78				
Some college	29	20				
College graduate	2	2	23.859***[c]	8.603**[c]	1.361[c]	47.521***
Years in Navy						
Less than 1 year	64	8				
1 to 2 years	8	22				
2 to 5 years	17	47				
More than 5 years	11	24	409.228***[b]	1.634[b]	71.440***[b]	72.446***
Socioeconomic Status						
Lower	16	20				
Middle	53	49				
Upper	31	31	3.734	.522	14.636	19.176
Marital Status						
Single	69	49				
Living with someone	5	4				
Married	11	41				
Divorced/widowed	15	6	46.026***	26.662***	29.000**	14.517
Children						
None	91	65				
One or more	9	35	13.320***	31.828***	5.953	17.192
Volunteer Status						
Yes	63	29				
No	37	71	27.945***	125.268***	31.446***	14.654**

[a]Percentages do not always equal 100 due to rounding.

[b]Only three response levels were used in computing chi squares.

[c]Only two levels were used in computing chi-square.

*p < .05.
**p < .01.
***p < .001.

20

Table 3

Results of ANOVAs Performed on the Traditionalism, Acceptance, Discrimination, and Gender Interaction Factors

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
		Traditionalism		
Two-way Analyses				
Gender	89.808	1	89.808	95.562***
Age	7.094	3	2.365	2.516
Interaction	3.002	3	1.001	1.065
Residual	1839.158	1957	0.940	
Ship[a]	12.509	4	3.127	3.173*
Pay grade[a]	15.208	3	5.069	5.144**
Interaction	17.063	12	1.422	1.443
Residual	1825.145	1852	0.985	
Ship[b]	3.952	5	0.790	1.758
Pay grade[b]	2.783	1	2.783	6.191*
Interaction	2.644	5	0.529	1.176
Residual	139.820	311	0.450	
One-way Analyses				
Department[a]	18.633	8	2.329	2.345**
Residual	1698.642	1710	0.993	
Control[a]	25.566	1	25.566	25.824***
Residual	2329.473	2353	0.990	
Volunteer[b]	12.922	1	12.922	31.473***
Residual	126.043	307	0.411	
		Acceptance		
Two-way Analyses				
Gender	0.691	1	0.691	0.843
Age	10.261	3	3.420	4.174**
Interaction	6.077	3	2.026	2.472
Residual	1603.769	1957	0.820	
Ship[a]	10.276	4	2.659	3.106*
Pay grade[a]	14.239	3	4.746	5.737**
Interaction	6.165	12	0.514	0.621
Residual	1532.019	1852	0.827	
Ship[b]	4.858	5	0.972	2.001
Pay grade[b]	7.556	1	7.556	15.560***
Interaction	0.823	5	0.165	0.339
Residual	151.025	311	0.486	
Ship[a]	24.128	4	6.032	7.215***
Age[a]	11.274	4	2.818	3.371**
Interaction	19.323	14	1.416	1.694
Residual	1553.163	1881	0.855	
One-way Analyses				
Department[a]	50.616	8	6.327	7.782***
Residual	1390.240	1710	0.813	
Control[a]	0.540	1	0.540	0.644
Residual	1975.392	2353	0.840	
Volunteer[b]	5.195	1	5.195	8.889**
Residual	179.406	307	0.584	

[a]Based on men only.

[b]Based on women only.

*p < .05.
**p < .01.
***p <.001.

Table 3 (Continued)

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Discrimination				
Two-way Analyses				
Gender	67.561	1	67.561	109.763***
Age	2.563	3	0.854	1.388
Interaction	1.090	3	0.363	0.590
Residual	785.402	1276	0.616	
Ship[a]	2.908	3	0.969	1.468
Pay grade[a]	3.777	3	1.259	1.907
Interaction	1.943	9	0.216	0.327
Residual	725.828	1099	0.660	
Ship[b]	2.131	5	0.426	0.974
Pay grade[b]	2.544	1	2.544	5.818*
Interaction	1.594	5	0.319	0.729
Residual	135.994	311	0.437	
One-way Analyses				
Department[a]	14.771	8	1.846	2.835**
Residual	645.959	992	0.651	
Control[a]	0.017	1	0.017	0.026
Residual	1065.238	1566	0.680	
Volunteer[b]	3.145	1	3.145	7.197**
Residual	132.323	307	0.431	
Gender Interaction				
Two-way Analyses				
Gender	125.103	1	125.103	215.453***
Age	2.180	3	0.727	1.251
Interaction	16.851	3	5.617	9.673***
Residual	1136.339	1957	0.581	
Ship[a]	3.455	4	0.864	1.427
Pay grade[a]	37.962	3	12.654	20.897***
Interaction	9.585	12	0.799	1.319
Residual	1121.471	1852	0.606	
Ship[b]	4.725	5	0.945	2.098
Pay grade[b]	0.014	1	0.014	0.031
Interaction	3.128	5	0.626	1.389
Residual	140.093	311	0.450	
One-way Analyses				
Department[a]	16.437	8	2.055	3.130**
Residual	1122.658	1710	0.656	
Control[a]	1.642	1	1.642	2.552
Residual	1513.555	2353	0.643	
Volunteer[b]	0.011	1	0.011	0.024
Residual	141.138	307	0.460	

[a]Based on men only.

[b]Based on women only.

*p < .05.
**p < .01.
***p <.001.

Traditionalism (Factor 1)

Factor 1, which measures attitudes toward women and their role in the Navy and the work place, shows significant gender, ship, pay grade, department, control, and volunteer effects (Table 3). The gender-by-age analysis revealed that women expounded far more contemporary views than did the men (Figure 1). While the F-ratio for age (Table 3) was not significant at the .05 level, a linear trend was noted; that is, younger personnel were more traditional than were older personnel. Pay grade also showed a linear effect for both genders. Men in pay grades E-1 through E-6 were traditional; CPOs were neutral; and commissioned officers held contemporary views about women's traits and roles in the workplace. Although all women expressed contemporary beliefs, the mean score of female petty officers was the most nontraditional of any subgroup. The ship effect was significant for men but not for women. Ship #6, whose factor score indicates a significant traditional orientation, has a preponderance of men in a department[4] not found on the other ships in this sample. To detemine whether the traditional attitudes of the men in this department could influence the factor score mean sufficiently to account for the divergence in Ship #6, a one-way ANOVA was performed after removing the men in the suspected department from the sample. A significant main effect for ship was obtained again ($p < .018$) and the mean factor score of Ship #6 remained the most traditional of any in the sample.

Figure 2 shows the effect department had on this factor. The mean scores for men in the aviation, supply, deck, engineering, and weapons departments indicated that they held traditional beliefs. Only those in the medical/dental department expressed contemporary attitudes, while those in repair, operations, and administration were neutral in their views.

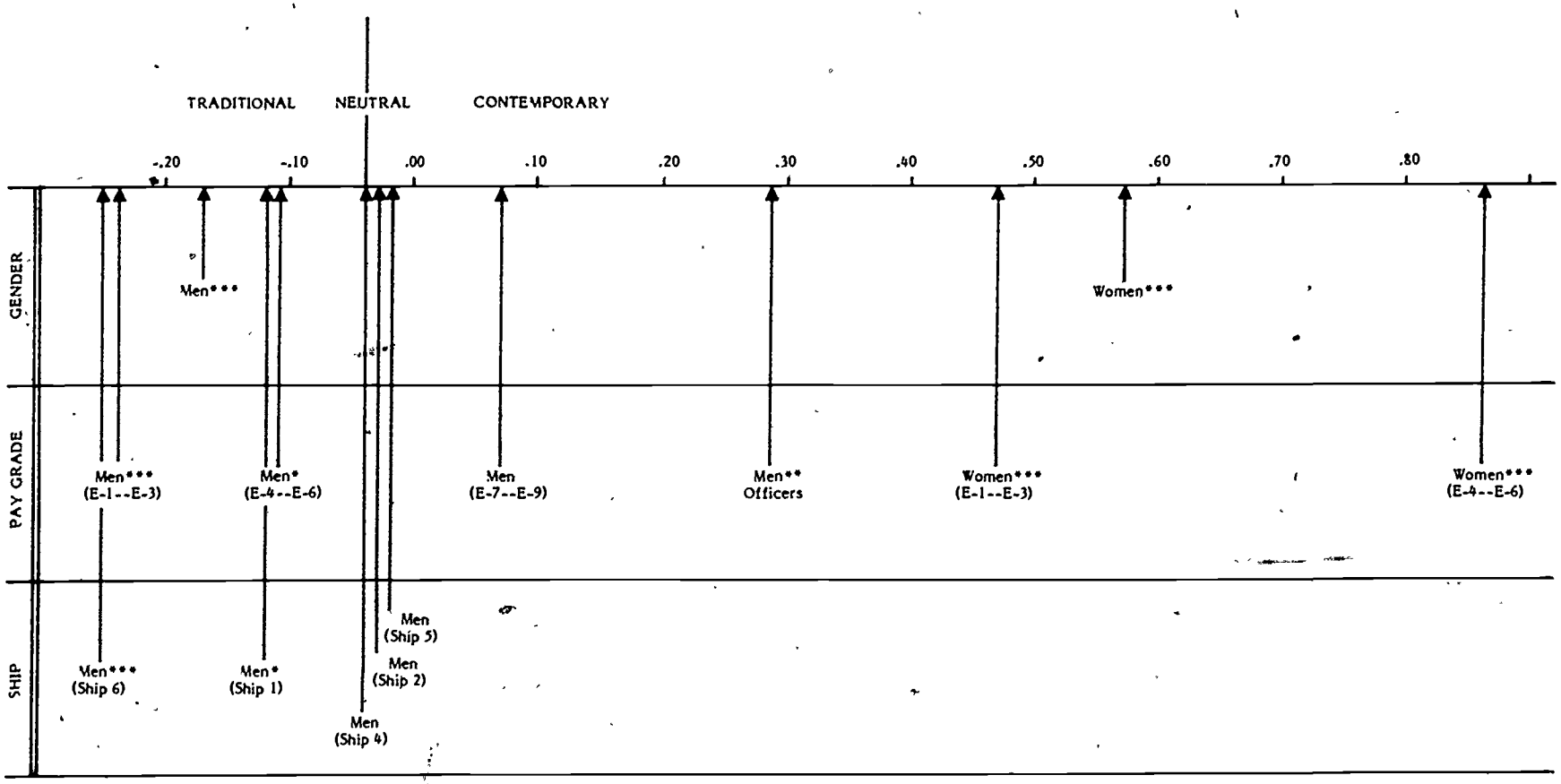
The comparison between the mean scores of the combined crews of the integrating ships and those of the control ship crew revealed that men who were not expecting women to join their crew held contemporary views, while those faced with this innovation had a traditional bent. However, due to the large intership variance among the integrating ships, an a posteriori contrast of the mean score of the control ship crews to each of the integrating crews (see Figures 1 and 2) was performed. The results showed that the control ship differed significantly only from the two most traditional ships--#1 and #6.

Finally, volunteerism among women was related to their attitudes toward the role of women. Not surprisingly, those who had chosen to go to sea were significantly more contemporary than those who did not volunteer.

Acceptance (Factor 2)

Table 3, which presents the results of the ANOVAs conducted for factor 2 (acceptance of women), shows that the gender effect for the factor scores was not significant, although six within-gender differences were revealed. Men who are 40+ years of age were the foremost supporters of the belief that women officers are accepted by Navy men and that the civilian image of the military woman is favorable; men between 20

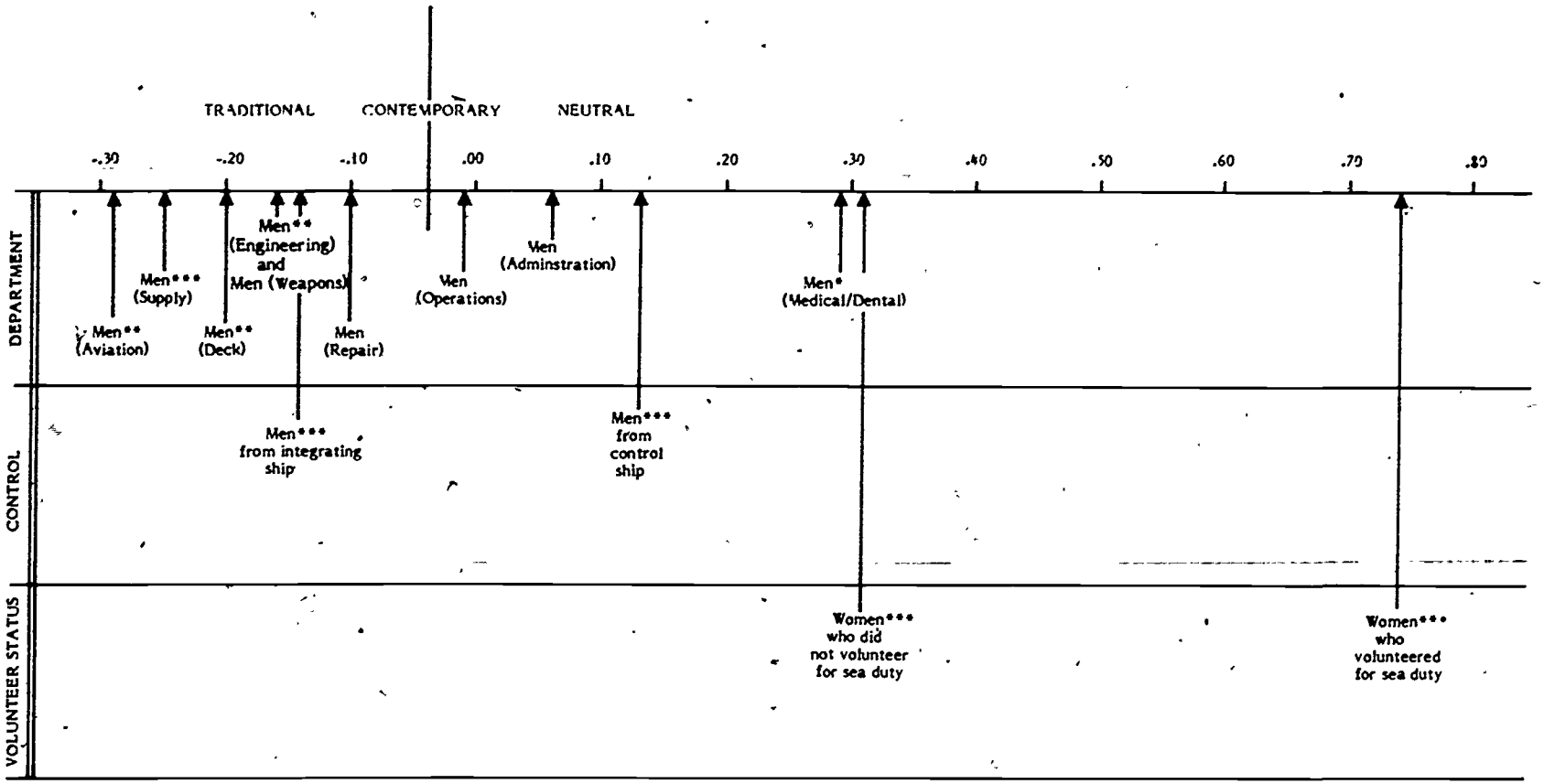
[4] If the department were named, the ship would be identifiable.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 1. Distribution of mean scores for variables yielding a significant within-group difference in the gender-by-age and pay-grade-by-ship ANOVAs (men and women separately)--traditionalism factor.



Note. Asterisks show groups with scores that deviate significantly from neutral.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Figure 2. Distribution of mean scores for variables yielding significant within-group differences on the one-way ANOVAs--traditionalism factor.

and 29 were at odds with this perception (see Figure 3). Women in the youngest age group (17-19) also believed that women officers are being assimilated, whereas women in the oldest age group (30-39) disagreed. Since a ship effect also was found for men and the ages of the men differed by ship (see Table 2), a two-way ANOVA was performed for these variables. Ship accounted for more of the variance than age and the interaction between the two barely missed being significant at the .05 level. The crew of Ship #5 was the most accepting of women and that of Ship #6, the least. Again, a one-way ANOVA conducted without the unique department in the sample yielded very similar results. The significant pay grade effect found for both sexes was linear, indicating that those with the most experience (higher pay grades) held the most pessimistic view.

Figure 4 shows the distribution of departmental means for this factor. Men in supply and deck thought women officers are well accepted, while those in weapons, operations, aviation, engineering, and repair did not; men in the administration and medical/dental departments were unsure. (Medical/dental department, because of its small N, was not significantly different from neutral.) There was also a volunteer effect for women. Those who did not volunteer for sea duty believed women officers are well accepted, while the volunteers were neutral. No control effect was found.

One item that loaded high on factor 2 (.52) did not address acceptance of women per se but, rather, whether men and women are treated equally in the Navy. Seventy-three percent of the female petty officers versus 56 percent of the nonrated women did not think so ($\chi^2(1,1) = 6.811$, $p < .01$), a finding consistent with the significant pay grade effect found for the two-way ANOVA.

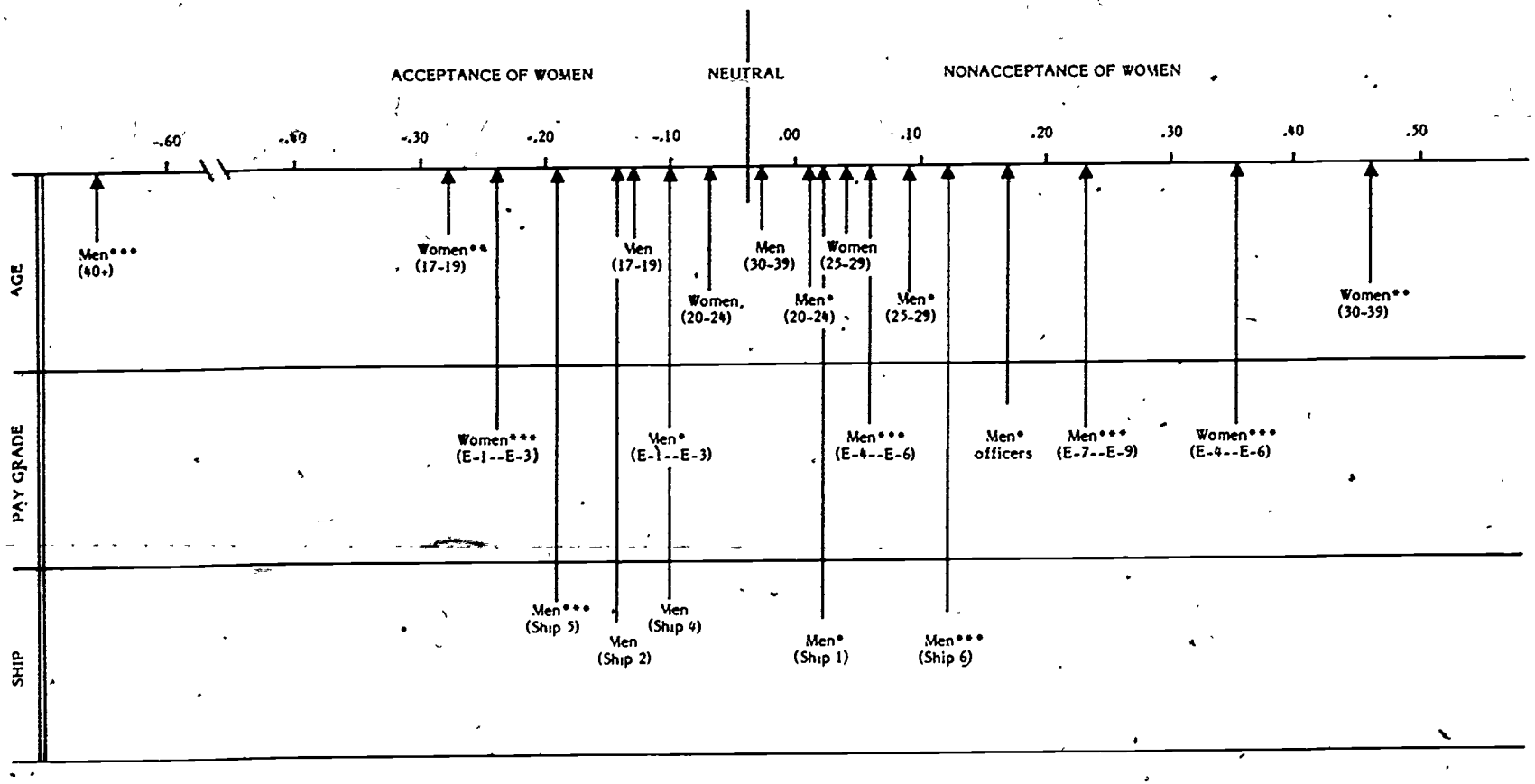
Discrimination (Factor 3)

Results of the ANOVAs performed on factor 3, which focuses on the expected treatment of women, shows that gender, but not age, had a strong influence on anticipated perceptions of inequities (Table 3). As illustrated in Figure 5, the women anticipated discrimination, whereas men believed the women would receive some favoritism. Table 4, which presents the results of the chi-square analyses of the eight individual items loading highest on this factor, reveals that men and women differed significantly ($p < .001$) on all. The men were most concerned with women receiving preferential treatment in job assignments, particularly tasks involving physical strength, and in disciplinary matters.

Pay grade yielded a significant main effect for women, but not for men, in the ANOVAs. Female petty officers anticipated much more discriminatory treatment aboard ship than did nonrated women. The ship effect did not achieve an acceptable level of significance for either the men or the women.

Figure 6 shows the distribution of factor score means for men in the various departments aboard ship. The men in the weapons department, where few women had ever worked, and in the medical/dental department, where a mixed-gender environment is more common, anticipated the most preferential treatment. All departments, however, anticipated that favoritism would prevail.

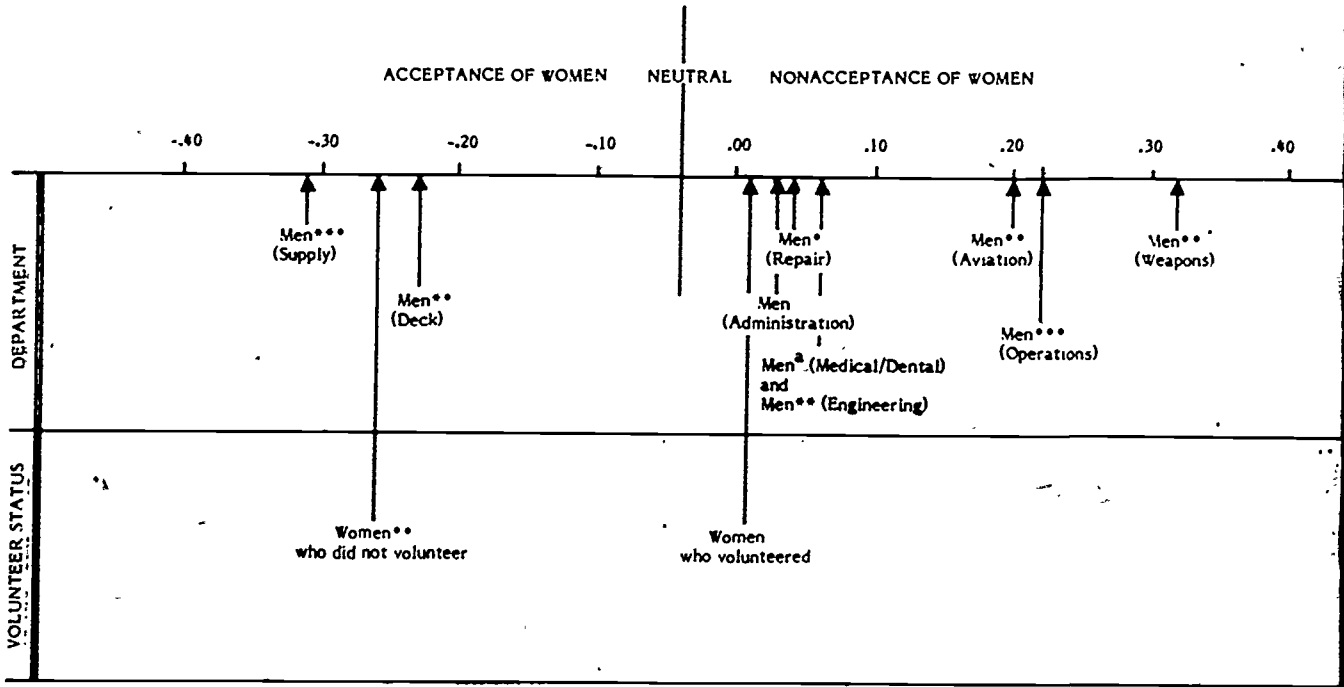
A significant volunteer effect for women was found. The women who had not volunteered for a sea duty assignment believed they would experience more discrimination than those who had volunteered. No significant main effect was obtained for control versus integrating ships.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 3. Distribution of mean scores for variables yielding a significant within-group difference in the gender-by-age and pay-grade-by-ship ANOVAs (men and women separately)--acceptance factor.

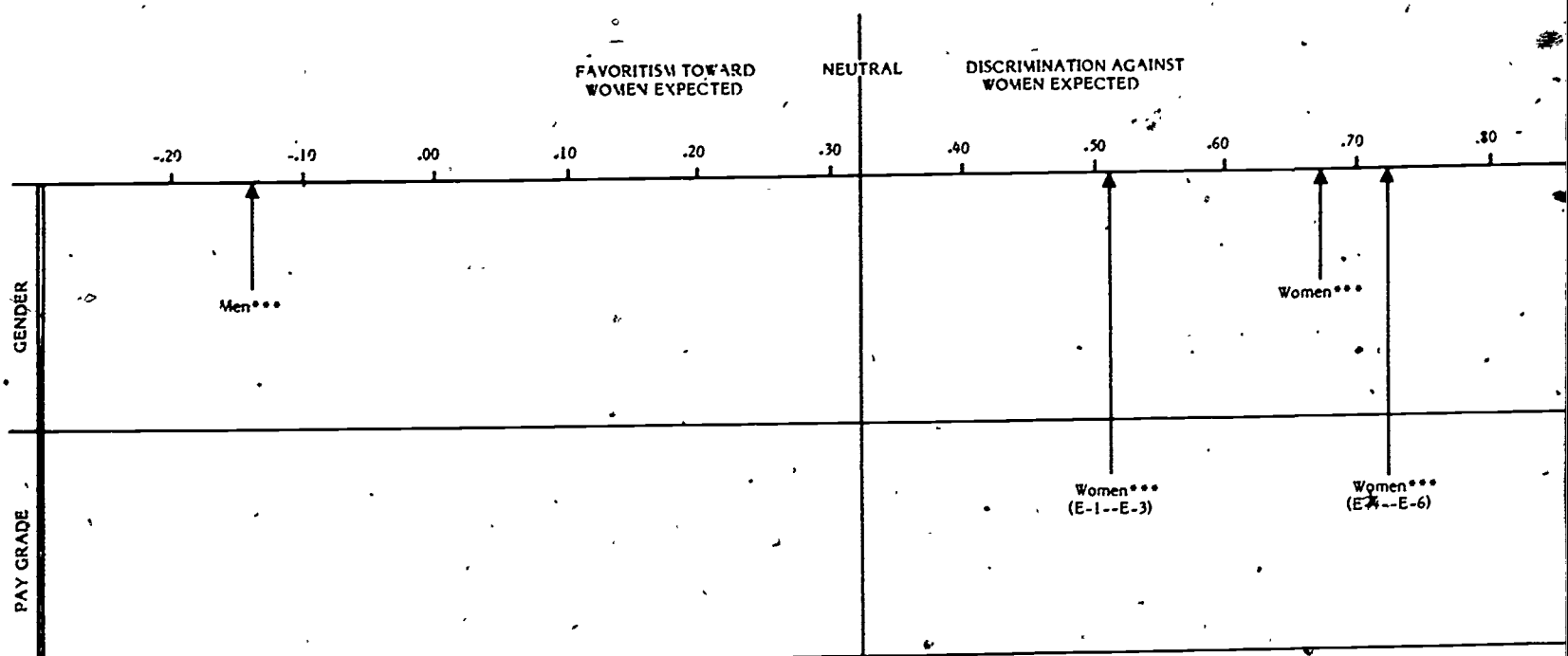


Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

[a]Because of the small sample and large variance, the mean score of the medical/dental men was not significantly different from neutrality.

Figure 4. Distribution of mean scores for variables yielding significant within-group differences in the one-way ANOVAs--acceptance factor.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 5. Distribution of mean scores for variables yielding significant within-group differences in the gender-by-age and pay-grade-by-ship ANOVAs (men and women separately)--discrimination factor.

Table 4

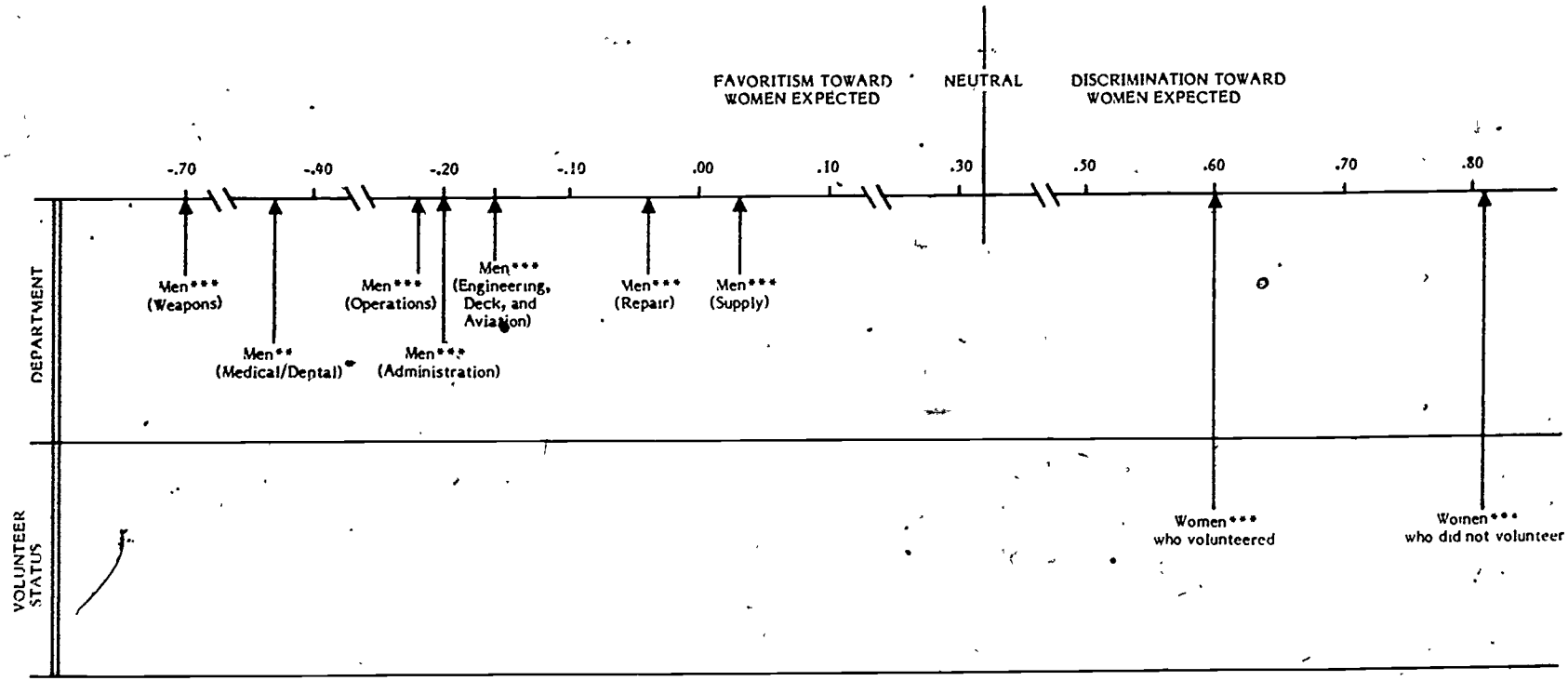
Comparison of Men's and Women's Responses to Discrimination Items

Item	Response Percentage Men[a]	Women	χ^2
Expected treatment of women in:[b]			
Job assignments			
Favoritism	62	10	261.4507*
Equal treatment	29	62	
Discrimination	9	28	
Discipline			
Favoritism	52	10	177.6879*
Equal treatment	45	83	
Discrimination	3	7	
Advancement			
Favoritism	25	2	140.3788*
Equal treatment	71	79	
Discrimination	4	19	
Education and training opportunities			
Favoritism	23	3	73.1754*
Equal treatment	72	87	
Discrimination	5	10	
Responsibility and leadership opportunities			
Favoritism	23	2	73.7796*
Equal treatment	55	65	
Discrimination	22	33	
Tasks involving physical strength			
Favoritism	68	32	145.0341*
Equal treatment	20	33	
Discrimination	12	35	
Women often receive favoritism from supervisors			
Agree	88	44	332.8478*
Disagree	12	56	
Women will be disciplined less harshly than the men			
Yes	55	13	134.1271*
No	45	87	

[a]Only men at pay grades E-1 to E-6 are included in these analyses.

[b]Men were asked how they believed women would be treated. Women were asked how they personally expected to be treated.

*$p < .001$.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 6. Distribution of mean scores for variables yielding significant within-group differences in the one-way ANOVAs--discrimination factor.

Gender Interaction (Factor 4)

Factor 4 is concerned with an affinity toward a mixed-gender environment and discomfort over restraints on gender interactions aboard ship. Results of the ANOVAs for this factor are included in Table 3. The significant gender differences found indicate that women were much less inclined than the men to be bothered by an all-male environment or by prohibitions against displays of affection (Figure 7). It is important to recognize that some of these items have a same-sex referent for one group and a cross-sex referent for the other. On one particular item, over 60 percent of the women said they would be less likely to pick a female than a male for a friend, whereas 70 percent of the men were impartial. Although no main effect was found for age, there was a significant interaction between age and gender (Table 3). Among men, the preference for a mixed gender environment was supported by all age groups except for those from 30 to 39 years of age, who appeared to be indifferent. The younger men (17-24) were the most dissatisfied with the traditional all-male environment.

Pay grade showed a linear effect for men; the lower ranking men expressed discontent with the traditional all-male environment aboard ship, whereas the CPOs and commissioned officers appeared to be satisfied. There was no pay grade effect for women or a significant ship effect for either gender on factor 4.

A significant department effect was also found in the one-way ANOVA performed on the male sample (Figure 8). Although the administration department appeared to be impartial, all other departments showed a strong dissatisfaction with an all-male environment. No significant control effect among men or volunteer effect among women was found.

Summary of ANOVAs of Factor Scores

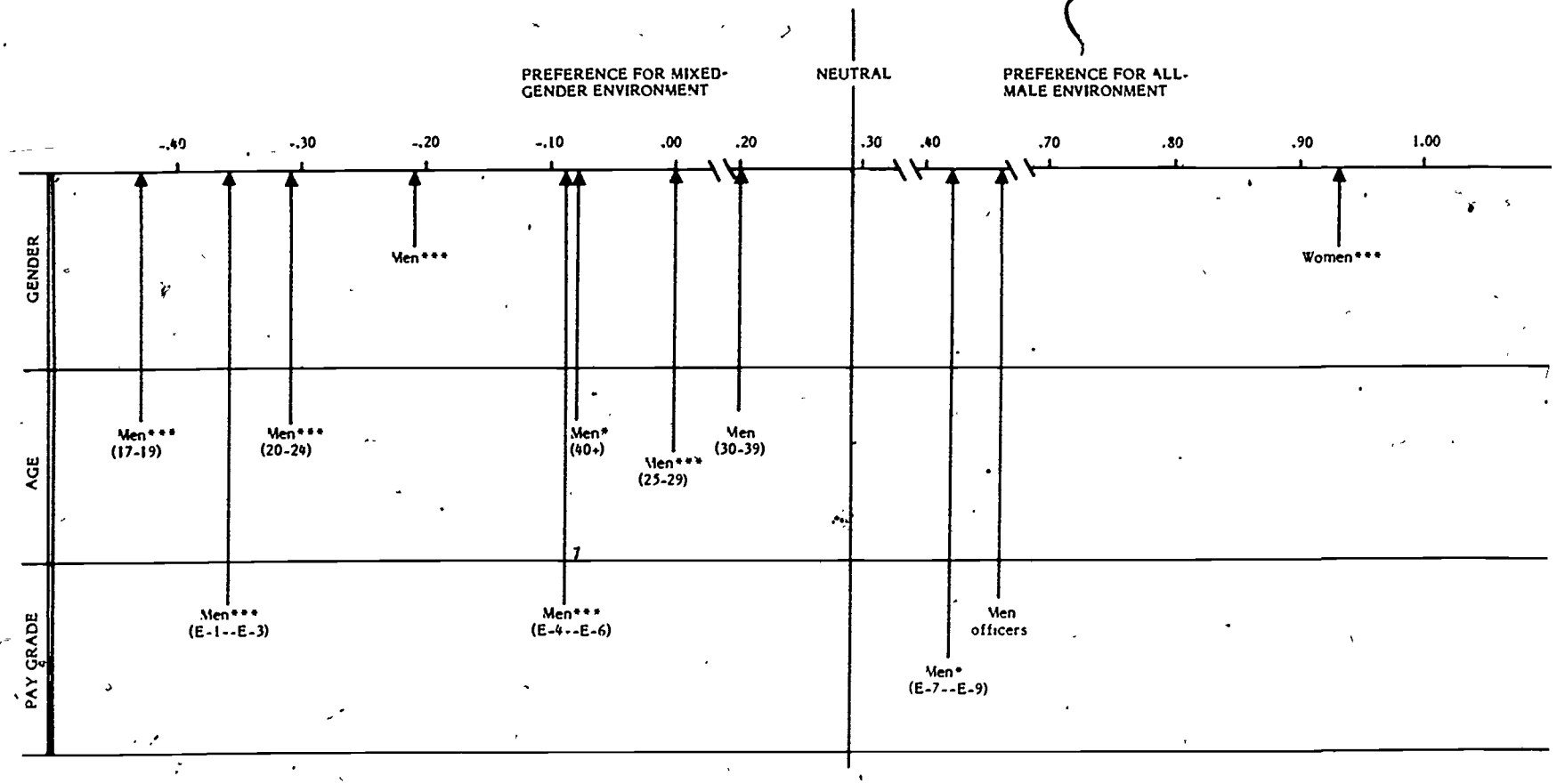
Five ANOVAs were performed on each of the four factor scores of men and four on each of the factor scores of women. Table 5 summarizes the results of these analyses.

Table 5

Summary of ANOVAs Performed on Four Factors

Variable	No. of Significant Main Effects	
	Women	Men
Ship	0	2
Department	NA	4
Pay grade	3	3
Volunteerism	3	NA
Control	NA	1
Age	0	1

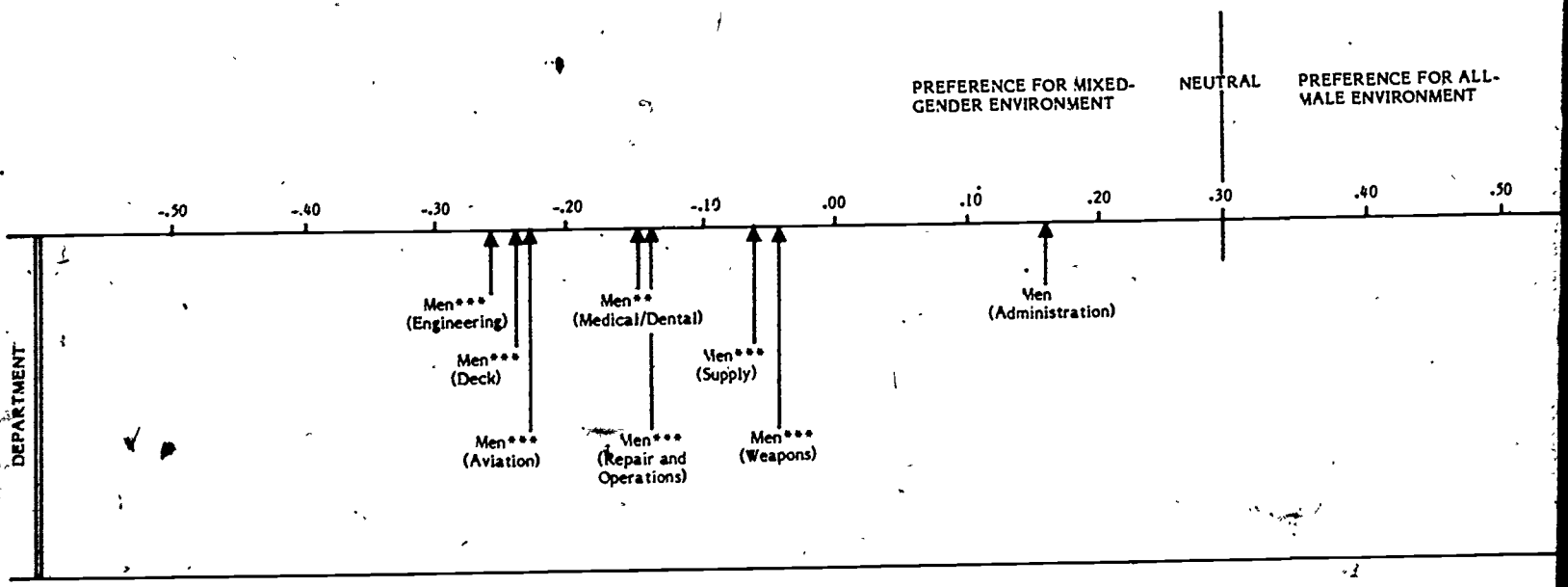
Note. Gender yielded a significant main effect for all four factors.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 7. Distribution of mean scores for variables yielding significant within-group differences in the gender-by-age and pay-grade-by-ship ANOVAs (men and women separately)--gender interaction factor.



Note. Asterisks show groups with scores that deviate significantly from neutral.

*p < .05.
**p < .01.
***p < .001.

Figure 8. Distribution of mean scores for variables yielding significant within-group differences in the one-way ANOVAs--gender interaction factor.

Among women, the two variables having the strongest influence on their responses were pay grade and whether they had (or would have) volunteered for sea duty; among men, department aboard ship and pay grade were most influential. Not surprisingly, the sexes differed significantly on all four factors. Age and being on an integrating ship or a control ship had very little effect upon the attitudes measured in the survey.

Additional Questions on the Men's Survey

Sixteen additional items, given only to the men, address the impact the assignment of women would have on the ship and the personal consequences anticipated. The multiple-choice response options are in terms of effect or likelihood of occurrence. For purposes of analysis, these items were grouped into seven topical areas: discipline, interpersonal relationships, morale, efficiency, Navy's image, use of profanity, and privacy. Results are discussed below.

Impact on Discipline

The impact on discipline, measured by the two items shown in Table 6, elicited the most apprehensions. A significant chi-square was obtained in the department analysis of one item: men in the weapons department were the most convinced that discipline aboard ship would suffer as a result of adding women to the crew. In responding to the second item, 60 percent of the sample believed that men would be blamed for the misconduct of both sexes, at least sometimes, and 34 percent of this group expected frequent unfair blame. The majority of commissioned officers and CPOs did not believe the men would be unfairly accused, whereas the majority of men in the lower pay grades believed this would occur. The crew of the control ship responded similarly to the crews of the integrating ships, who differed from each other. Men in Ship #5 expressed the most optimistic view; and those in Ship #6, the most pessimistic.

Impact on Interpersonal Relationships

Responses to items concerning effects on interpersonal relationships, the second most important area of concern, are shown in Table 7. Eighty-one percent of the men at all pay grades anticipated problems arising from jealousy and conflict among the men. While the nonrated men and petty officers were quite certain of this, the CPOs and commissioned officers felt that jealousy-related conflict would occur some of the time. When the men were asked if they believed that integration would personally cause conflict with their spouses or girl friends, only 18 percent said "Yes." However, the majority of men (60%), particularly the CPOs, believed that having women aboard ship would be harmful to the relationships of Navy men and their wives or girl friends ashore. Apprehensions about all interpersonal problems were strongest among the nonrated men and petty officers.

The response distributions by department were similar for both items in Table 7. Responses by ship were significantly different for the first item only ($\chi^2(2,4)=24.245$, $p < .01$). The crew of Ship #6, more than any other, anticipated that having women aboard would generate jealousy among men. There were no differences between the control and integrating crews regarding jealousy among the men, overall impact on Navy men and their wives or girl friends, or the effect on their own spousal relationships.

Table 6

Anticipated Impact of Women on Discipline
by Department and Pay Grade

Item	Response Percentage[a] Positive	No Effect	Negative	χ^2
Impact on discipline.				
Department				
Administration	22	29	48	
Operations	18	31	51	
Engineering	26	26	48	
Deck	26	30	44	
Supply	32	29	39	
Medical/dental	38	17	45	
Weapons	19	20	61	
Repair	25	31	44	
Aviation	18	32	50	
Overall	25	29	46	28.394*
	Yes	Sometimes	No	
Men will be blamed for the misconduct of both men and women.				
Pay grade				
E-1--E-3	37	28	35	
E-4--E-6	34	25	41	
E-7--E-9	24	24	53	
Officers	7	20	72	
Overall	34	26	40	39.822**

Note. Significant chi-squares by ship were obtained for both items ($\chi^2(2,4) = 36.571$, $p < .001$ for the first item, and $\chi^2(2,4) = 44.040$, $p < .001$ for the second item). The chi-squares for pay grade on the first item and for department on the second item were not significant.

[a]Percentages do not always equal 100 due to rounding.

*p< .05.
**p< .001.

Table 7

Anticipated Impact of Women on Interpersonal Relationshps by Pay Grade

Item	Response Percentage[a] Yes	Sometimes	No	χ^2
Women will cause jealousy and problems among the men.				
Pay grade				
E-1--E-3	49	32	19	
E-4--E-6	44	37	19	
E-7--E-9	32	52	16	
Officers	29	51	20	
Overall	45	36	19	22.820*
Having women aboard ship will cause conflicts in my relationship with my wife/girl friend.				
Pay grade				
E-1--E-3	20	17	63	
E-4--E-6	19	15	66	
E-7--E-9	11	13	77	
Officers	2	6	92	
Overall	18	15	66	24.229*

[a]Percentages do not always equal 100 due to rounding.

*$p < .001$.

Impact on Morale

The men's feelings regarding the expected impact on morale were very definitive; neutral responses were uncommon. The majority of men believed the addition of women would improve morale and make life aboard ship more enjoyable. Also, 58 percent of the men said they would prefer a mixed-gender workgroup to one with only men (see Table 8). This finding was strongest among the lower pay grades.

Responses to the morale items revealed significant differences among those in the various pay grades and departments. Men in the lower ranks and those in the medical/dental, deck, and administration departments held the most favorable views. Ship differences were also apparent; men from Ships #2, #4, and #5 were the most enthusiastic about women improving the quality of life aboard ship. The control crew was appreciably more convinced than the integrating crews that the addition of women would improve morale and make life more enjoyable.

Table 8

Impact of Women on Morale

Item and Overall Distribution of Responses (Percentage[a])		χ^2 of Distributions by: Pay Grade	Department	Ship	Control
Having women aboard ship will impact on morale:					
Positively	62				
Have no effect	11				
Negatively	27	6.980	13.778	39.052***	11.286**
Having women aboard ship will make life more enjoyable.					
Yes	49				
Sometimes	26				
No	24	50.921***	27.544*	27.980***	8.433*
I prefer having both men and women in my workgroup.					
Agree	58				
Neutral	31				
Disagree	11	23.201***	40.226***	32.418***	4.518

[a]Percentages do not always equal 100 due to rounding.

*p<.05.
**p<.01.
***p<.001.

Impact on Efficiency and Work

Responses to the five items concerning the impact of integration on the efficiency of running the ship are shown in Table 9. Overall, the assignment of women was not expected to have a positive or negative effect on the efficiency of the ship or crew. The majority of men felt that, with equal training and experience, women supervisors would be as good as men and that having women aboard ship would not distract them from doing their work. Concern with competition from women for jobs was minimal; less than one-fifth of the men believed having women crew members would lessen their chances for getting a desired job. In addition, 56 percent of the men believed that the problems caused initially by the assignment of women would be temporary. Only 20 percent of the men felt that problems would not be ironed out with time.

Pay grade effects were found on three of the work items. The CPOs and commissioned officers were the most confident that women would perform as well as men in supervisory positions. Although their concern was minimal, the lower ranking men believed significantly more than did their superiors that women would distract them from work and lessen their chances for getting desired jobs.

Table 9

Impact of Women on Efficiency and Work

Item and Overall Distribution of Responses (Percentage)		χ^2 of Distributions by: Pay Grade	Department	Ship	Control
Impact on the efficiency of running the ship.					
Positive	30				
No effect	43				
Negative	27	1.884	28.065*	25.367**	3.175
With equal training and experience, women would be as good supervisors as men.					
Yes	60				
Maybe	24				
No	16	21.883**	23.558	20.453**	17.457***
Having women aboard ship will distract me from doing my work.					
Yes	17				
Sometimes	22				
No	61	49.150***	15.172	25.748**	0.736
Women will lessen my chances for getting the job I want.					
Yes	17				
Maybe	15				
No	68	37.831***	36.622**	27.928***	3.905
Having women aboard ship will cause some problems at first, but they will disappear with time.					
Yes	56				
Maybe	24				
No	20	8.734	30.755*	38.338***	3.002

*p<.05.
**p<.01.
***p<.001.

Differences between departments were also evident. Men in the aviation and weapons departments were the most negative about the anticipated effect on efficiency and they were the most skeptical about initial problems decreasing with time. Men in supply and deck departments were the most optimistic about the impact of women on work. However, men in supply, along with those in engineering and aviation, were the most concerned that job opportunities would decrease, whereas those in operations and repair appeared the least anxious about competition from women. Men in the medical/dental and repair departments were the most convinced that problems caused by having women aboard would be temporary; those in weapons and aviation were the least optimistic.

Ship effects were also revealed: Men from Ships #4 and #6 expected the most negative impact on efficiency and those from Crews #2 and #6 believed that women would be distracting. Men from Ship #5 gave the greatest number of positive responses on the item addressing efficiency, while those from Ships #4 and #5 appeared to be the most optimistic regarding problems disappearing with time.

There were no significant differences between the control and integrating crews concerning the impact on efficiency, distraction from work, competition for jobs, or longevity of problems. However, the control crew showed more confidence than did the integrating crews (70 versus 60% respectively) that women would perform as well as men in supervisory roles.

Impact on Navy Image and Pride of Membership

Men were also asked if integration would affect the overall image of the Navy. As shown in Table 10, 44 percent of the men believed that having women in the crew would improve the Navy image. Those from Ships #2 and #5 were the most positive; and those from Ships #1 and #6, the most negative. However, when asked if their pride in being part of the Navy would be altered, 54 percent of the men said that integration would have no effect. Those in supply and medical/dental departments held the most favorable views, while men in repair, weapons, and engineering were the most negative ($\chi^2(2,9)=39.142$, $p < .01$). Men at the various pay grade levels responded similarly to these items, as did the crew of the control ship.

Table 10

Responses to Items Addressing the Navy's Image and Pride of Membership

Item	Response Percentage			χ^2 for Difference Among Ships
	Positive	No Effect	Negative	
Impact on the Navy's image.	44	29	27	16.817*
Impact on my pride in being part of the Navy.	30	54	16	47.096**

*p < .05.
**p < .001.

Impact on Profanity

The issue of profanity is addressed by the two items shown in Table 11. The first questions if women will keep men from swearing, and the second asks if restrictions on language will bother men. Overall, one-fourth of the men felt that having women aboard ship would definitely prevent them from swearing. This expectation was most prevalent in the supply and medical/dental departments ($\chi^2(2,8) = 39.934$, $p < .001$). Another 21 percent believed they would have to control their language some of the time. However, over a third of the men said that they would be frustrated if restrictions were placed on the use of profanity, although concern decreased as rank increased ($\chi^2(1,3) = 35.206$, $p < .001$).

Table 11

Impact of Integration on Profanity

Item	Response Percentage			χ^2
	Yes	Sometimes	No	
Having women aboard ship will keep me from using profane language.				
Integrating ships	25	21	54	
Control ship	33	19	48	12.654*
It will be unnatural and frustrating for me to stop swearing.				
Integrating ships	34	19	47	
Control ship	26	17	57	14.400**

*$p < .01$.
**$p < .001$.

There were differences between the control and integrating crews. It appears that fewer of the men in the control crew would object to curtailing their language than would men in the integrating crews.

Impact on Privacy

The impact on men's privacy is addressed by one item: "Having women aboard ship will not allow me enough privacy." In response, 18 percent said "Yes"; 24 percent, "Sometimes"; and 57 percent, "No." Overall, most men did not expect that the lack of privacy resulting from having women aboard ship would be a problem, although the nonrated men and petty officers were more concerned than were the CPOs and commissioned officers (χ^2 (2,3) = 18.726, $p < .01$). Also, men aboard Ships #2 and #6 showed more concern than did their peers aboard other ships ($\chi^2(2,4) = 26.636$, $p < .001$). No differences were found between the control and integrating crews nor among the departments aboard ship.

Additional Questions on Women's Survey

Nine items given only to women address potential problem areas aboard ship. As shown in Table 12, a large majority of the women expected the abundant use of profanity and pressures to prove oneself to be persistent problems.[5] In addition, at least one-third of the women expressed concern about learning ship terminology, resentment or negative attitudes from the men, and performing tasks involving physical strength. Significant differences among ships were found on seven of the nine items. Women assigned to Ship #6 were the most apprehensive about crowded quarters, ship's design, and general quarters drills. Those assigned to Ship #2 were less concerned than the others about having to prove themselves and resentment from men. These differences may be a reflection of the varied emphasis and/or content of the preparatory workshops, each organized and presented by different HRM personnel, the types of ships to which the women were being assigned, or the varying Navy experience of the respondents.

Table 12

Problems Anticipated Aboard Ship by Women

Do you think the following areas will present problems for you?	Response Percentage[a]			χ^2 for Difference Among Ships
	Yes	Only at First	No	
Crowded quarters, lack of privacy	21	44	35	35.423***
Ship protocol	23	70	7	6.809
Use of profanity by others	76	17	8	15.329
Ship design	30	62	9	79.893***
Shipboard terminology	46	50	4	35.442***
General quarters drills	25	70	6	25.542**
Having to prove myself	63	22	16	30.519***
Resentment or negative attitudes of the men	41	33	26	20.788*
Performing tasks involving physical strength	39	32	29	18.854*

[a]Percentages do not always equal 100 due to rounding.

*p < .05.
**p < .01.
***p < .001.

[5]The responses to an item asking about reactions to profanity seem to contradict the finding that 76 percent of the women cited that foul language would be a problem. Sixty-three percent of the women said they were not affected by profanity, 32 percent were a little bothered by it, and only 5 percent became greatly upset. The authors have no logical explanation for the disparity between these presumably similar items.

The remaining items given only to women address work group composition, supervisory preference, and leadership skills. A large majority (85%) of the women had previously worked as the sole woman in a male-dominated group; in that situation, 27 percent of them reported having had difficulties. When asked about work-group preference, only 2 percent chose to be with a majority of women, 21 percent preferred a balanced gender mix, and 35 percent desired to have more men than women in their work groups (42% were indifferent). Similar findings were evident in the preference expressed for supervisors. Male supervisors were preferred to female ones (30% vs. 1%), although the majority (69%) had no preference. In the area of leadership, 58 percent of the women reported having had some supervisory experience; and 85 percent expressed a desire for additional training in leadership or management.

Items Addressing Special Topics

Problem Resolution

Appropriate use of the chain of command for citing grievances and resolving problems is assessed by asking who would be the most and the least likely persons to approach with a professional or personal problem. As shown in Table 13, women adhered to policy, citing superiors of either gender as the most likely confidant for professional (work-related) problems. Men, on the other hand, chose a male superior as most likely, with male peer as the second choice. A female superior was the least likely person with whom a man would discuss a work-related problem. The men's disinclination to seek guidance from a female superior may be due to the lack of women in supervisory positions or stem from personal bias against, reluctance, or discomfort in addressing women in positions of authority.

There was a definite trend evident for both genders to seek out a same-sex peer with whom to discuss a personal problem. However, the second most likely choice for women was an opposite-sex peer, while men favored a male superior. Superiors, regardless of gender, were not regarded as preferred confidants for personal problems; rather, they were the least likely people to approach on these matters.

Attitudes Toward Sea Duty

Women were more enthusiatic than men about life aboard ship, perhaps because they had never had this experience. Forty-seven percent of the women versus 17 percent of the men said sea duty was something they had always wanted, while one-third of the respondents of both sexes stated they accepted the assignment as necessary to achieve career goals. Almost half of the men (47%), compared to 18 percent of the women, said that they would avoid sea duty if possible. Correspondingly, 64 percent of the women had volunteered for duty aboard ship, while only 30 percent of the men said they would have volunteered if given that option.

As shown in Figure 9, gender differences were also evident in the responses to the open-ended question addressing the best aspects of sea duty. Women saw their time aboard ship as an opportunity to gain job experience and as a way to travel. Very few men, on the other hand, mentioned job experience; they saw travel as the main benefit to be gained with "life at sea" (i.e., solitude, tranquility, scenery, change of pace) as a secondary benefit.

Table 13

Responses to Problem Resolution Items (E-1--E-6).

Item	Response Percentage[a] Men	Women
Who are you most likely to talk to about . . .		
A professional problem?		
Male peer	15	6
Female peer	3	6
Male superior	66	48
Female superior	9	31
Male subordinate	4	4
Female subordinate	1	4
A personal problem?		
Male peer	55	27
Female peer	11	48
Male superior	29	13
Female superior	2	6
Male subordinate	3	2
Female subordinate	1	4
Who are you least likely to talk to about . . .		
A professional problem?		
Male peer	8	10
Female peer	14	14
Male superior	12	13
Female superior	21	16
Male subordinate	17	22
Female subordinate	26	25
A personal problem?		
Male peer	9	14
Female peer	14	10
Male superior	21	24
Female superior	28	20
Male subordinate	13	19
Female subordinate	14	13

[a]Percentages do not always equal 100 due to rounding.

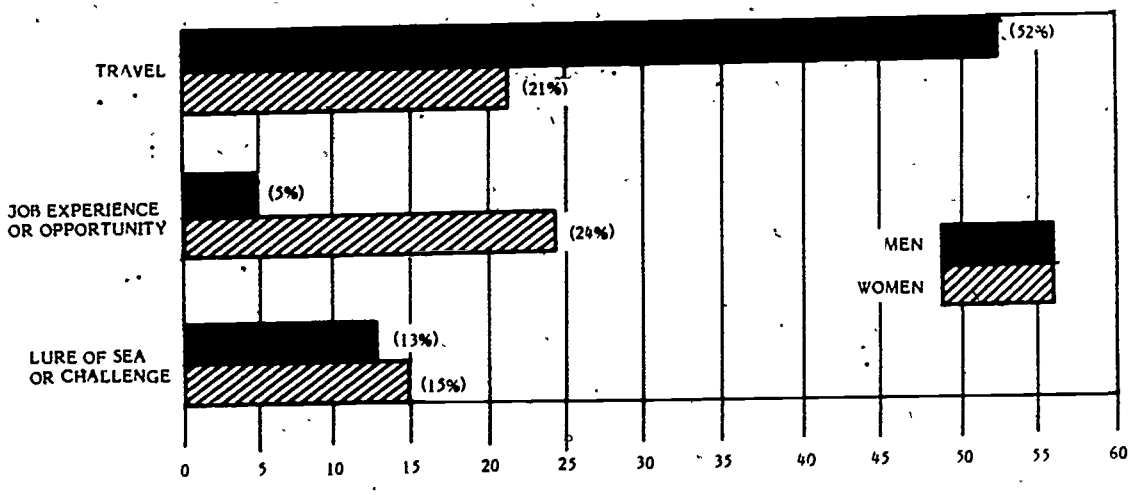


Figure 9. Best aspects of sea duty given by men and women.

The worst aspects of sea duty, according to both women and men, were family separations, shipboard living conditions, and work performed aboard ship. The men also emphasized boredom, long work-hours, and lack of opportunities for education as areas of discontent.

Sexual Harassment

The sensitive topic of sexual harassment is addressed in the main section of the survey and also in an additional open-ended item that the women respond to anonymously. A content analysis of the open-ended item revealed that almost one-third of all the women (one-half of the petty officers) stated they had experienced sexual harassment while in the Navy. This harassment consisted, primarily, of unwelcome propositions and was verbal in nature.

Table 14 shows the responses given to the multiple-choice items appearing in each form of the survey. Men, particularly those in the lower pay grades, were fairly certain that women would experience sexual harassment aboard ship. The CPOs and commissioned officers differed from their male subordinates in that they felt only a few women would be harassed. Significant differences were also found between the control and integrating ships ($\chi^2(1,3) = 22.063$, $p < .001$); that is, more men on the control ship thought harassment would be only a temporary problem.

Differences found among ships, for both men ($\chi^2(3,4) = 34.992$, $p < .001$) and women ($\chi^2(2,4) = 24.584$, $p < .01$), may presage differential experiences. The women assigned to Ships #3 and #6 had the least apprehensions about harassment, while those assigned to Ships #1, #4, and #5 voiced a greater degree of apprehension. The men showed a somewhat different pattern. Those from Ships #4 and #5 expected that less harassment of women would occur than did those from Ships #2 and #6. (The men from Ship #1 were not given this item.)

In summary, men anticipated a greater problem with sexual harassment aboard ship than did the women. Women, surprisingly, did not feel that they would experience more sexual harassment aboard ship than they had in shore establishments.

Table 14

Responses to Sexual Harassment Items by Pay Grade

Item	Response Percentages[a] E-1--E-3	E-4--E-6	E-7--E-9	Officer	Total
Men (N=984)					
Do you think women aboard your ship will be sexually harassed?					
Yes, most of them will	30	27	5	10	27
Yes, a few will	34	35	54	48	36
Only at first, they will	27	29	29	23	28
No	9	10	12	19	10
		$\chi^2 = 21.682$*			
Women (N=326)					
Do you anticipate problems with sexual harassment aboard ship?					
Yes	27	34	--	--	29
No	32	34	--	--	32
Don't know	41	33	--	--	39
		$\chi^2 = 2.290$			

[a]Percentages do not always equal 100 due to rounding.

*$p < .01$.

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DISCUSSION AND CONCLUSIONS

This report presents the results of the analysis of survey data collected prior to women reporting for duty aboard six Navy ships. It was anticipated that survey responses of the men in the crews of the ships being integrated would differ as a function of the amount of their experience working with women and of their pay grade. Women at the same pay grade were expected to hold similar attitudes, except that those who had volunteered for sea duty would be more positive. As indicated previously, four hypotheses were developed to investigate these relationships.

1. Hypothesis 1. The departmental differences postulated were generally supported. Traditional attitudes were held by men in four of the five departments where women ashore are rarely found performing in any but support functions and, subsequently, where the sexes have had scant experience working together. The exception was men in repair whose scores were in the traditional direction but who did not differ significantly from neutrality. Significant departmental differences also were found on 12 of the 17 questions concerned with the impact of integration, adding support to this hypothesis. Men in the weapons and aviation departments were the most pessimistic about the impact women would have on the functioning of the ship; those in engineering and aviation showed the most concern with the adverse consequences to them as individuals.

The men in the medical/dental departments, where women co-workers are common, held the most contemporary views. These men, and those in the administration department, thought the addition of women would benefit the ship and crew. Men in supply concurred, despite their unexpected conservative scores on traditionalism (factor 1). Furthermore, the men in medical/dental, administration, and operations were the least concerned about female crew members having a negative impact on their personal lives. These findings may be partially a function of the proportion of higher-ranking men in the administration and medical/dental departments (21.3%) (this explanation does not apply to operations) yersus those in other departments aboard ship (7.7%).

Although the men in all departments anticipated women would receive preferential treatment (factor 3), those in weapons were most convinced that favoritism would occur. Yet, except for the neutral position of those in administration, the men favored a mixed gender environment.

2. Hypothesis 2. The prediction that men in the crews of ships soon to have women would endorse fewer sexual stereotypes than those in an auxiliary ship not scheduled for integration was rejected. The significant main effect found on factor 1 was opposite to that hypothesized. Comparing responses of the control crew with the combined responses of the men from the integrating ships showed that the latter group was more reluctant to accept women in nontraditional roles. Contrary to expectations, men from the control ship held contemporary attitudes toward the role of women and believed that the addition of women would have a more positive effect than did men from the integrating ships. Specifically, the control crew was more inclined than the integrating crews to believe that morale would improve, personal pride in the Navy would increase, and life would become more enjoyable with a mixed-gender crew. These results seem to indicate that the preintegration workshops, designed to dispel both stereotypic beliefs about women and apprehensions about integration, failed to meet their objectives. However, since the control ship crew was appreciably different from only the crews of the first and last ships to be integrated (Ships #1 and #6), the workshops may have had a positive effect. The crew of the last ship to receive women was not given the operational "Women-at-Sea" workshop by HRM personnel and the workshop delivered to the first crew was refined and improved for the following crews. It is also possible that the hypothesis was not supported

because integrating crews were responding to the reality of having women as crew members, in comparison to the hypothetical situation for the control ship.

Differences among the crews of the integrating ships were notable. The men of Ship #6 expressed the least optimal attitudes on every factor or item for which a significant main effect or chi-square was found. The majority of respondents from Crew #6 were nonrated, young, and not predisposed toward volunteering for sea duty. Their generally negative attitude appears to have been projected onto gender integration. Also, Ship #6 has a departmental configuration that is different from that of all other ships in the sample and is a training ship of advanced age as well. The possibility that the views of the men in the dominant department could account for the significant ship effect found in the ANOVAs was investigated and shown not to be the case. It is possible that the constant cycling of personnel through a training program may lend instability to a crew and result in lower morale or the harsh physical conditions aboard an old ship (crowding, outdated equipment, unreliable air-conditioning) may lead to a generally negative attitude.

At the other end of the continuum from Crew #6 was Crew #5 who, in accepting the women, said that integration would increase their pride in the Navy and improve the Navy's image and who believed that women would have a positive impact on efficiency. These men were older, better educated, and in higher pay grades than were the men in the other ships. Also, the attitude of the captain of Ship #5 was extremely positive, as revealed by his request for command of a ship with women in the crew. He communicated this enthusiasm to his crew and took great pride in seeing that they received the best preparation available. By contrast, the command of Ship #6 received little support or guidance in preparing his men (and the women coming aboard), even though such help was requested. The resultant frustration may have been felt by the crew; if so, integration would have been seen as the culprit, making women the scapegoats.

3. Hypothesis 3. Contrary to expectations, traditionality was found to decrease rather than an increase with rank. Nonrated men evidenced the most conservative attitudes toward women, while the commissioned officers held fairly egalitarian views and the CPOs were neutral. Apparently, the changing norms and greater contact with females in public education had not affected the attitudes of the traditional young men who had recently entered naval service.

In general, the commissioned officers and CPOs felt the addition of women would have little impact on the ship and crew. The lower-ranking men, who soon would be working and socializing with women aboard ship, were more ambivalent. They were more worried than were their superiors about jealousy and conflicts among the men stemming from competition and they were much more concerned with being unfairly disciplined. Furthermore, the nonrated men and petty officers shared the concerns mentioned in Graichen's (1977) newspaper article; that is, they felt that women would have a negative impact on some aspect of their personal lives (i.e., conflicts with spouses, distraction from work, job competition, and lack of privacy). The commissioned officers and CPOs expected negligible personal consequences probably because of the supervisory relationship they would have with the women, who were almost all nonrated or petty officers.

Despite the fact that the lower-ranking men anticipated more negative personal consequences than did those in the higher pay grades, they were the greatest proponents of the integration. Several factors might be contributing to this apparent incongruity.

a. Most men, whether traditional or not, may simply like having women around. For single men, in particular, there also could be social rewards and improved morale associated with being in a mixed-gender crew.

b. The anticipated jealousy and favoritism toward women may have been viewed not as problems but as concomitants of coeducation to which the younger men are accustomed.

c. Men with a traditional orientation may have interpreted special treatment of women as functional, since they also held the belief that women are less capable.

4. Hypothesis 4. The results supported the hypothesis that no ship effect was found for any of the women's factor scores.[6] This finding is of great importance in appraising integration at sea, for it demonstrates that these women had very similar attitudes (except for the variance accounted for by pay grade and volunteer status) when they entered the six separate ships under study. If a ship effect is found in the women's responses to the postintegration survey, the probable reason for this change will reside in their intervening experiences. Since the men in the crews of these ships differed in their traditionality, acceptance of women, and expectations of the women's impact, one of the intervening variables of interest will be the predispositions of male peers and supervisors.

In general, the women were fairly optimistic about their prospects at sea, particularly the volunteers who welcomed the opportunity to enhance their careers. The women felt that adjusting to shipboard life would not present serious problems, but did show concern about profanity, having to prove themselves, and resentment from the men.

There was less variability among the women's factor scores than among the men's. Women petty officers held the most egalitarian attitudes, anticipated the most discrimination, and had the most jaundiced views on the acceptance of women officers by Navy men. Although, the majority had volunteered, their naval experiences ashore appear to have led to greater skepticism about integration at sea. The younger, nonrated women, who tended to be somewhat less contemporary, were not as concerned about discrimination and believed that women officers are well accepted by Navy men--a view not shared by their male counterparts. Women who had volunteered for sea duty were more optimistic in that they expected less discrimination and greater acceptance.

Unfortunately, the relationship of these variables to preintegration attitudes and expectations cannot be empirically determined. Nevertheless, the possible effects on attitudes, acceptance of women, and general success of the integration should be considered in the evaluation of the integration process.

Analysis of the individual items showed that women were more concerned with interpersonal relationship problems than with shipboard adjustment. They felt that adapting to the work environment, such as learning ship design, protocol, and general quarters drills, would result from experience. Contrary to Quigley's (1977) stereotype of comfort-loving American young women, this sample rated crowded quarters lowest among all the nine problems listed. Their greatest concerns were dealing with excessive use of profanity and having to prove themselves, two areas that could adversely affect job satisfaction (Woelfel & Savell, 1978; Durning, 1977). On a positive note, women were enthusiastic about being assigned to ships, looking upon the experience as job enhancing.

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[6] While differences were found among the women on some of the items addressing anticipated problems, these items were not used in testing hypothesis 4.

Almost all said they would be comfortable and actually preferred being in predominantly male surroundings. Also, a preference for male co-workers and supervisors was evident among most of the women.

Ironically, the women anticipated less sexual harassment than did the men. However, since one-half of the female petty officers indicated they had previously experienced sexual harassment in the Navy, a proliferation of this problem might reasonably be expected within the confined environment of a ship. The vulnerability of the nonrated women, due to their youth, inexperience, eagerness to gain acceptance, and possible fear of repercussions, are factors the Navy needs to consider when prevention strategies are developed.

In addition to the aforementioned individual and organizational variables, other factors could have influenced the attitudes measured and, ultimately, the success of integration: they include (1) publicity, (2) chronology of integration, (3) deployment schedules, (4) ship size and type, and (5) relative gender ratio.

The extensive media coverage of the first women assigned to ships (including television and movie crews) may have had negative effects. In Durning's (1978) study of the first year of integration at the Naval Academy, 67 percent of the women rated being an object of publicity as a problem. The men's dislike of the spotlighting of the women was evident from responses to an open-ended item that asked for recommendations to aid in integration. Twenty-two (18%) of the 119 recommendations emphasized "not making a big deal about the women coming aboard."

Ships #1 and #6 were integrated over a year apart. Although the publicity surrounding the first women sailors dissipated as the novelty of women at sea decreased, it may have had residual effects. The media's tendency to report and sometimes sensationalize every newsworthy incident may have altered the expectations of perspective crew members.

Deployment schedules, ship size, and mission of the ship could also moderate attitudes. For example, the crew of a ship that deploys frequently may perceive a mixed-gender crew more amiably than one that does not often experience life without women for long periods of time. It is equally feasible that the work roles, living conditions, or specific duties aboard a ship more often at sea is such that the addition of women is seen as complicating an already difficult situation. Ship size could affect attitudes in that men in large ships may see the addition of a relatively small number of women as having minimal impact. On the other hand, anticipated competition for the attention of a very few women may be greater in a proportionately larger crew. Similarly, in ships with smaller crews, integration may be seen as having more consequences, because of more dramatic changes in personnel configuration and associated lifestyles.

Another issue that could contribute to resentment among the men concerns modifications made to the ship to prepare for the women coming aboard. Discussions with supervisory personnel prior to integration indicated that alterations to the berthing compartments and head facilities to accommodate women created feelings of inequity in some of the men.

Unfortunately, the relationship of these variables to preintegration attitudes and expectations cannot be empirically determined. Nevertheless, the possible effects on attitudes, acceptance of women, and general success of the integration should be considered in the evaluation of the integration process.

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APPENDIX

ITEMS HAVING THE HIGHEST FACTOR LOADINGS

Table A-1

Items Having the Highest Factor Loadings (Over .30)

Item	Correlation
Factor 1: Traditionalism	
Women cannot stand the stress associated with command responsibility.	.70
If women were assigned to combat ships, the Navy would. . . become more effective. . . stay the same. . . become less effective.	.70
Women are basically nonaggressive and, therefore, will never be good in active combat.	.69
Women should not be put on combatant ships.	.68
The Navy's role is best carried out by . . . men only . . . mostly by women.	.66
Women should not compete with men for jobs or promotions because a man's career is more important and should not be jeopardized.	.64
Because many women leave the Navy to become homemakers and mothers, they should not be considered an important dependable resource for the Navy.	.62
Given that women are being assigned shipboard duty, what proportion of the crew do you think should be women?	.62
Women should take a supportive role in society, marriage, and the work world rather than trying to be leaders and competing with men.	.60
If a greater number of qualified women were placed in command positions, the effectiveness of the Navy would . . . increase . . . not change . . . lessen.	.60
All occupational fields in the aviation branch (in both support and combat roles) should be open to women.	.59
Men are better at giving orders and commanding than are women.	.58
Women should be allowed to work at any job they are capable of performing no matter how nontraditional it is.	.55
If the Equal Rights Amendment (ERA) were put to a popular vote, would you vote for it?	.47
Women should take more responsibility for leadership in government and business.	.41

Table A-1 (Continued)

Factor 2: Acceptance	
Women officers are well accepted by Navy enlisted men.	.64
Men and women are treated equally in the Navy.	.52
Women officers are well accepted by men officers.	.53
Among civilians, I think the image of a female in the military is favorable.	.39
Women are more sensitive to the needs and problems of others than are men.	.31
Women are usually more considerate as supervisors than are men.	.31
Factor 3: Discrimination	
I expect that women will . . . experience favoritism . . be treated fairly . . . experience discrimination . . in advancement.	.63
I expect women will . . . experience favoritism . . . be treated fairly . . . experience discrimination . . . in education and training opportunities.	.58
I expect women will . . . experience favoritism . . be treated fairly . . experience discrimination . . in responsibility and leadership opportunities.	.48
I expect that women will . . experience favoritism . . be treated fairly . . experience discrimination . . in discipline.	.42
I expect that women will . . . experience favoritism . . be treated fairly . . . experience discrimination . . in job assignments.	.34
Women will be disciplined less harshly than males for the same misconduct.	.33
Women in the Navy often receive favoritism from superiors.	.31
Factor 4: Gender Interaction	
Women in the Navy receive favoritism from superiors.	.46
Working and living with all men bothers me.	.45
Living in an environment where romantic and/or sexual relations are forbidden for long periods of time bothers me.	.45
Given a work group of equal numbers of men and women, I would be as likely to pick a woman for a friend as I would a man.	.40
Women are more sensitive to the needs and problems of others than are men.	.33

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