

AD A116429

NPRDC TN 81-13

MAY 1981

WOMEN IN THE MILITARY: GENDER INTEGRATION AT SEA



**NAVY PERSONNEL RESEARCH
AND
DEVELOPMENT CENTER
San Diego, California 92152**

DTIC
JUL 2 1982
A

This document has been approved
for publication and sale; its
contents are not to be
distributed.



82 07 02 047

DTIC FILE COPY

WOMEN IN THE MILITARY: GENDER INTEGRATION AT SEA

Patricia J. Thomas

Reviewed by
Robert Penn

Released by
Richard C. Sorenson
Director of Programs

Navy Personnel Research and Development Center
San Diego, California 92152

FOREWORD

This technical note is based on a paper presented at the 88th Annual Convention of the American Psychological Association on 4 September 1980 in Montreal, Quebec, Canada.

Since the paper was written while data were still being gathered, the results are preliminary. The Navy research discussed in the paper is being conducted within Advanced Development Project Z1326-PN (Integrated Crews), under the sponsorship of the Chief of Naval Personnel.

RICHARD C. SORENSON
Director of Programs



FL-182

A

SUMMARY

Problem

In October 1978, the Federal Code was modified to permit the assignment of women to U.S. Navy ships, overturning several hundred years of tradition. Although only 297 women were assigned to ships during the first year, about 5,000 will be serving at sea by 1985. Introducing females into a totally male environment on this scale will not be accomplished without attendant problems.

Objective

The purpose of the study described herein is to measure and observe factors hypothesized to be associated with the integration process. Of particular interest are certain personal interactions that are believed to occur in a skewed organization.

Approach

Four ships were given the preintegration form of the Navy in Transition Survey. One of these ships was resurveyed 9 months after integration. In addition, Navy reservists collected observational data aboard six ships.

Responses to the preintegration and postintegration surveys were analyzed to determine how attitudes were affected by gender, age, education, pay grade, ship, and shipboard department.

Findings and Conclusions

The attitudes measured in the preintegration survey were highly related to both the individual and organizational variables of interest. Although nonrated men held the most traditional beliefs about women's roles in the workplace, they liked working with women more than did any other group. On the postintegration survey, petty officers were the least positive of any group about the success of integration. Department effects were also evident. Women felt more performance pressure than men and experienced more problems aboard ship.

CONTENTS

	Page
INTRODUCTION	1
Problem and Background	1
Objective	2
PROCEDURE	2
Survey Instruments	3
Hypotheses.	4
Observations	5
Analyses.	5
RESULTS	5
Preintegration Survey	5
Factor Analyses	6
Hypotheses.	11
Postintegration Survey.	11
Factor Analyses	11
Hypotheses.	15
Other Issues	18
Observations Recorded	20
CONCLUSIONS.	21
DISTRIBUTION LIST	23

LIST OF TABLES

	Page
1. Sampling Statistics for Crews of Ships Taking Pre-integration Survey	3
2. Factor Analysis of Preintegration Survey: Items With the Highest Loadings	7
3. Results of Two-way ANOVAs of the Preintegration Factor Scores to Determine Effects of Sex, Education, and Age	8
4. Results of Two-way ANOVAs of Men's Preintegration Factor Scores to Determine Effects of Ship, Pay Grade, and Department	9
5. Responses Concerning Best Aspects of Sea Duty	10
6. Results of Two-way ANOVAs of Factor Scores for Men on Integrating Ships and Control Ship	11
7. Factor Analyses of Postintegration Survey: Items With the Highest Loadings	13
8. Results of ANOVAs to Determine Effects of Pay Grade, Sex, and Department	14
9. Percentages of Women and Men Experiencing Performance Pressure	15
10. Reenlistment Intentions Before and After Integration	16
11. Women's Judgment of Same-sex and Cross-sex Interactions	17
12. Sea Duty Assignment Problem Areas Cited by at Least One-third of Respondents in Pay Grades E-1 to E-6	18
13. Crew's Judgment of Success of Integration	19

INTRODUCTION

Problem and Background

Until recently, Navy enlisted women were exclusively a land-based support force, except for a brief period in 1973-1974, when approximately 100 women were assigned to USS SANCTUARY. In October 1978, however, the Federal Code was modified to permit their assignment to auxiliary and support ships. This action was taken by the Congress at the request of the Department of Defense, because the supply of men available to the Navy is dwindling. After a modest start of assigning 297 enlisted women to four ships during fiscal year 1979, Navy management has decreed that 5,000 women will be serving on over 30 ships by 1985. This decision signals a profound change, overturning several hundred years of naval tradition. It not only raises questions as to whether women can withstand the rigors of sea duty but also how men and women will interact in a previously all-male environment. It is believed that some Navy men will resent the intrusion of women into their shipboard milieu and that the spirit of camaraderie among shipmates will be splintered.¹ Even if these fears are unwarranted, problems are bound to result when a very small group of women find themselves living and working in close quarters with a large group of men.

Kanter,² in studying the effects of proportionality on work groups, developed a conceptual framework of the interactions that occur in a skewed organization; that is, one where 20 percent or less of the members are of an obviously different group. She found that the numerically dominant group exercises control over the culture in the workplace. The members of the minority group are not treated as individuals but, rather, as symbols

¹Taken from testimony of ADM Worth Bagley, then VCNO, Hearings on H.R. 9832 to Eliminate Discrimination Based on Sex with Respect to the Appointment and Admission of Persons to the Service Academies, Hearings before the House Armed Services Committee, 93:2 (GPO, 1975), p. 120.

²Kanter, R. M. Some effects of proportions on group life: Skewed sex ratios and responses to token women. American Journal of Sociology, 1977, 82(5), 965-990.

or what Kanter called tokens of their class. The effect is heightened when the minority group is physically obvious and where the majority group is used to interacting with the minorities in ways quite different from those required by the job situation. Three perceptual phenomena associated with being a token were identified: (1) high visibility, (2) polarization, or exaggeration of the differences between the dominants and the tokens, and (3) assimilation, or the use of stereotypes to generalize the behavior of the tokens. Each of these phenomena affects the interactions between the groups and results in identifiable response patterns on the part of the tokens. Kanter presented evidence to demonstrate that visibility leads to performance pressures; polarization, to a heightening of the boundaries between the groups; and assimilation, to role entrapment. These consequences bode ill for the tokens, for they create personal stress on the job and frequently mitigate against people reaching their potential in the organization.

Ships that are being integrated are skewed organizations since only about 10 percent of the crew are women. Moreover, the male dominants are not used to interacting with women as co-workers on the 24-hour basis required during deployments, or in certain departments found only aboard a ship (e.g., deck, weapons, and engineering). Thus, the conditions for the group processes conceptualized by Kanter exist on these ships.

Objective

The objective of this study is to measure and observe factors hypothesized to be associated with the integration process. Of particular interest are certain personal interactions that occur in a skewed organization.

PROCEDURE

A multimethod study to investigate the process of gender integration aboard U.S. Navy vessels was initiated in June 1979. All ships having enlisted women in their crews during the first 2 years of integration (1979-1981) will be included in the project. However, research has been conducted aboard only 4 ships to date.

Survey Instruments

Data used in the project are being obtained by administering the Navy in Transition Survey to crew members on these ships before and after integration and abstracting data in journals maintained by participant/observers assigned to these ships. The preintegration form of the Navy in Transition Survey was designed to collect background and identifying information and to measure attitudes hypothesized to be associated with group dynamics during integration aboard ships. Over half the men aboard ship were surveyed before the women reported for duty. Most of the women were surveyed during their 2-week preparatory training for sea duty. Table 1 presents demographic data for survey respondents.

Table 1
Sampling Statistics for Crews of Ships Taking
Preintegration Survey

Item	Ship				Total
	A	B	C	D	
Pay Grade					
E-1--E-3	350	100	63	126	639
E-4--E-6	452	88	54	195	789
E-7--E-9	52	5	4	22	83
W-1--W-4	5	0	0	2	7
O-1--O-5	18	3	4	4	29
Unreported	27	5	8	2	42
Total	904	201	133	351	1589
Sex					
Women	77	54	45	41	217
Men	827	147	88	310	1372
Total	904	201	133	351	1589
On-board Count					
1 July 1980	1140	375	220	860	2585
Percentage of Women					
in Crew	8%	16%	24%	6%	10%

The postintegration survey is to be administered 9-12 months after the women report aboard ship. Although this survey was pilot tested aboard a ship that already had women in the crew when the project began, the final version of the survey has been given to the crew (N = 890) of only one ship (Ship A in Table 1) as of August 1980 [when this paper was presented].

Hypotheses

Six hypotheses will be tested in this project; two (1 and 2 below) with data obtained through the preintegration survey and four (3 through 6 below), with data obtained through the postintegration survey:

1. The men in engineering, deck, weapons, and repair departments will have the least positive attitudes toward women because they have the least experience working with women in their rating.

2. Men on 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 on ships not being integrated, because of the preintegration workshops held to prepare affected personnel for integration at sea.

3. Due to high visibility and subsequent performance pressure, women will be more likely to feel that they have to prove themselves than will men.

4. Personnel in ship departments that have no shore-based parallels (e.g., engineering, deck) will perceive the greatest number of problems arising from the assignment of women to ships.

5. Assigning women to ships will have no effect on men's reenlistment intentions. Also, the retention rates of men and women aboard ships will not differ.

6. Women will rate men as being more likeable and easier to work with than other women. This expectation is attributed to what Kanter called loyalty testing, or the desire of the tokens to try to gain acceptance of the dominants.

Observations

Personnel were observed during 2-week sessions aboard the four ships by groups of naval reservists, selected for their civilian or military experience in behavioral sciences. Group members (one officer, one chief petty officer, and two petty officers--one male and one female--who are trained in techniques of objective observation) were provided standardized forms on which to record incidents and their perceptions of how these incidents affected job performance, morale, or discipline. These records were later catalogued by key word and combined across observers and ships.

Analyses

The attitudinal items common to the women's and men's surveys were factor analyzed. Factor scores were computed for each respondent for use as the dependent variables in the analyses of variance (ANOVAs). For the preintegration factor scores, the effects of gender, age, educational level, ship, department aboard ship, and pay grade were investigated; for the postintegration factor scores, the effects of gender, pay grade, and department were investigated.

Distributions of responses to individual questions were obtained for women and men separately. The chi-square analysis was applied to these distributions to determine whether the response patterns of the two sexes differed.

Incidents from the journals maintained by the participant/observers were typed and coded for easy indexing. Tapes of the 8-hour debriefing sessions held with the observers were also typed. These data were used, as needed, to amplify or clarify the results obtained from the surveys.

RESULTS

Preintegration Survey

Responses to the preintegration survey showed that women being assigned to Navy ships differed significantly from the men in the crew on many of the background variables. Since two-thirds of these women were nonrated (E-1 to E-3), many of the

differences (age, marital status, years in the Navy) were a function of their pay grade. While women had achieved a higher educational level than men, the socioeconomic status of parents of the two groups was similar. In addition, 67 percent of the women had volunteered for sea duty, whereas only 32 percent of the men said they would have volunteered if given a choice.

Factor Analyses

Table 2, which provides results of the factor analysis of the attitudinal items common to the women's and men's surveys, shows that four major factors emerged: (1) traditionalism, (2) favoritism, (3) interpersonal skills, and (4) gender mix. Table 3 provides results of the two-way analyses of variance (ANOVAs) performed on the factor scores to investigate the effects of sex, education, and age. These results are described below:

1. Factor 1 was linearly related to education, with those having the least schooling expressing the most traditional views. Age demonstrated a U-shaped effect, since the youngest and oldest groups were the most traditional. Men were more traditional than women.

2. Factor 2, which questions whether women will receive special treatment aboard ship, yielded another U-shaped age effect. The youngest and oldest groups felt that women would not receive preferential treatment; those between 20 and 29 felt that they would. Women expected some discrimination.

3. Factor 3 addressed the interpersonal skills of women. Although neither sex nor education was related to opinions concerning such skills, age yielded a U-shaped distribution. Those under 20 and over 40 years thought that women are more sensitive and considerate than men and that women officers are well accepted. The rest of the sample tended to see no difference between the sexes.

4. Factor 4, which was based on questions about working in an all-male environment, showed strong sex, education, and age effects. Women indicated that working in

Table 2
Factor Analysis of Preintegration Survey: Items
With the Highest Loadings

Factor and Component Items	Loading
<u>Factor 1: Traditionalism</u>	
Women cannot stand the stress associated with command responsibility.	.74
Women should not compete with men for jobs or promotions because a man's career is more important and should not be jeopardized.	.71
Because many women leave the Navy to become homemakers and mothers, they should not be considered an important dependable resource for the Navy.	.68
Women are basically nonaggressive and, therefore, will never be good in active combat.	.66
Women should take a supportive role in society, marriage, and the work world rather than trying to be leaders and competing with men.	.64
Men are basically more dominant and are better at giving orders and commanding than are women.	.61
The Navy's role is best carried out . . . (by men only . . . mostly by women).	.59
If women are assigned to combat ships, the Navy would . . . (become more effective . . . become less effective).	-.59
If a greater number of qualified women were placed in command positions, the effectiveness of the Navy would . . . (increase . . . lessen).	-.58
<u>Factor 2: Favoritism</u>	
I expect women will experience some favoritism aboard ship in the area of advancement.	.60
I expect women will experience some favoritism aboard ship in the area of education and training opportunities.	.59
I expect women will experience some favoritism aboard ship in the area of discipline.	.53
I expect women will experience some favoritism aboard ship in the area of job assignments.	.43
Women in the Navy often receive favoritism from superiors.	.43
Women will be disciplined less harshly than men for the same misconduct.	.42
<u>Factor 3: Interpersonal Skills</u>	
Women are more sensitive to the needs and problems of others than are men.	.42
Women officers are well accepted by Navy enlisted men.	.40
Women are usually more considerate as supervisors than are men.	.36
<u>Factor 4: Gender Mix</u>	
Working and living in an environment with all men will bother me.	.57
Living in an environment where romantic and/or sexual relations are inhibited or forbidden for long periods of time will bother me.	.48
Given a workgroup of equal numbers of men and women, I would be as likely, or more likely, to pick a woman for a friend as I would a man.	.37

Table 3

Results of Two-way ANOVAs of the Preintegration Factor Scores
to Determine Effects of Sex, Education, and Age

Factor	F-ratio and Significance Level		
	Sex	Education	Age
1. Traditionalism	167.695***	5.679***	3.282*
2. Favoritism	347.130***	0.577	4.862***
3. Interpersonal Skills	0.704	1.629	3.413**
4. Gender Mix	128.051***	3.687**	27.411***

Note. None of the interactions was significant.

*p < .05

**p < .01

***p < .001

such an environment would not be too difficult. Education was linearly related to preferring a mixed-gender environment; those without college degrees were less likely than others to want to work solely with men. Age showed a linear relationship to the factor scores, with those over 30 years being more satisfied than those in other age groups with working in a shipboard environment without women.

Table 4 shows how organizational variables affect the factor scores of the men in the sample. These results are discussed below:

1. Among ships, there was a difference in traditionalism (Factor 1). Pay grade, moreover, was linearly related to traditional beliefs. Nonrated men, who would become the peers of 64 percent of the women, held the most traditional beliefs about personality traits and appropriate work roles of women.

Table 4

Results of Two-way ANOVAs of Men's Preintegration Factor Scores
to Determine Effects of Ship, Pay Grade, and Department

Factor	F-ratio and Significance Level		
	Ship	Pay Grade	Department
1. Traditionalism	3.356*	13.197**	1.479
2. Favoritism	20.719**	1.171	3.667**
3. Interpersonal Skills	2.008	7.109**	3.542**
4. Gender Mix	1.066	26.652**	1.648

*p < .05

**p < .001

2. Factor 2 showed strong ship and department effects. The multiple-range test indicated that men in weapons, engineering, and deck departments, who felt that women would receive special treatment in job situations, differed from men in supply, who felt that everyone would be treated equally.

3. The opinions expressed concerning interpersonal skills (Factor 3) were significantly affected by pay grade and department. Nonrated men and men in the deck force thought women would have better interpersonal skills than would men. This notion was discounted by chief petty officers, commissioned officers, and rated men in the operations, medical/dental, and repair departments.

4. Factor 4 was linearly related to pay grade. Working in an all-male environment seemed to pose no problems for chief petty officers, but nonrated men were bothered by gender segregation.

The survey also included a number of open-ended questions that were not included in the factor analysis. One such question asked respondents to list the best aspects of sea duty. Table 5, which lists the three most frequent responses given, shows that 25 percent of the women felt that sea duty was an opportunity to gain additional job skills, compared to 5 percent of the men. Conversely, 52 percent of the men saw travel as the most

Table 5
Responses Concerning Best Aspects of Sea Duty

Aspect	Men (%)	Women (%)
Travel	52	22
Job experience or opportunity	5	25
Lure of sea or challenge	13	16

positive aspect of sea duty, compared to 22 percent of the women. It is possible that the women's attitude toward job opportunity may be tied to the high proportion of volunteers, and, as such, will not continue to be a gender difference. In any case, supervisors should be pleasantly surprised by their goal orientation.

The results of comparing the factor scores of men on integrating ships with those of men on an auxiliary ship not being integrated are provided in Table 6 and described below:

1. Ship Effects. Men on integrating ships were significantly more traditional (Factor 1) in their attitudes toward women in the workplace than were men on the control ship. Perhaps this was because they had had to come to grips with their feelings about a change that was going to occur, as opposed to the hypothetical quality of the survey questions for the controls. The differences between the two groups on Factor 2 suggests that the preintegration workshops were successful, in that the integrating crews did not feel that women would receive preferential treatment to the extent that the controls did. The lack of a ship effect for Factors 3 and 4 reinforces this finding among integrating ships, and indicates that there is considerable consistency among Navy men concerning these issues.

2. Department Effects. The department effects found for Factors 2 and 3 are interpreted the same as those discussed previously for integrating ships. Factor 1 did not yield a significant department effect with integrating ships. Apparently, with the

Table 6
Results of Two-way ANOVAs of Factor Scores for Men on Integrating
Ships and Control Ship

Factor	F-ratio	
	Ship (df = 1)	Department (df = 9)
1. Traditionalism	25.559**	2.055*
2. Favoritism	11.964**	2.124*
3. Interpersonal Skills	1.248	5.010**
4. Gender Mix	0.033	1.567

Note. None of the interactions yielded significant F-ratios.

*p < .05

**p < .001

increased samples in certain departments, brought about by the addition of the control ship, it became evident that men in medical/dental were significantly more contemporary than are those in engineering, weapons, supply, repair, and deck departments.

Hypotheses

The first hypothesis investigated with the preintegration survey was that men in weapons, deck, engineering, and repair departments would hold the most traditional attitudes. This hypothesis was supported, although the addition of a fifth ship was required before the differences became evident (see Table 6). The second hypothesis, which states that men on ships being integrated would be more likely to accept women than would men on other ships, was rejected.

Postintegration Survey

Factor Analyses

Six factors emerged from the analyses performed on responses to the postintegration attitudinal items common to surveys administered to men and women: (1) problems aboard ship, (2) favoritism/discrimination, (3) interaction with women, (4) interaction with

men, (5) performance pressure, and (6) working with the opposite sex. Three other factors emerged from items appearing only in the men's survey: (7) impact, (8) traditionalism, and (9) approval of women on ships. The items making up these factors are shown in Table 7. The results of the two-way ANOVAs performed on the first six factor scores to investigate the effects of sex and pay grade and the one-way ANOVAs performed on the remaining three factors to investigate the effect of department are provided in Table 8.

Results provided in Table 8 are discussed below:

1. Pay Grade Effects. As shown, the pay grade levels (nonrated, petty officer, and chief petty officer) had a significant influence on all of the factors except 2 and 4. The effect was linear for Factors 1 and 5, with those at the lowest pay levels reporting the most problems aboard ship and the greatest amount of performance pressure. For Factors 3 and 6, however, the results indicate that nonrated personnel were significantly more positive than were petty officers. On Factor 7, nonrated men felt the addition of women had had a positive impact, whereas the petty officers tended to see no change. The significant pay grade effect found for Factor 8 was due to the nontraditionality of chief petty officers. For Factor 9, results showed that petty officers expressed significantly less approval of women on the ship than did the nonrated men or chief petty officers.

2. Sex Effects. The sex effect found for Factor 1 indicates that women were experiencing more problems aboard ship than men at the same pay level. This effect is discussed in greater detail on pages 18 and 19. The sex differences reported for Factors 2 and 5 are due to the fact that women felt they were being discriminated against and had a greater need to prove themselves than men. On Factors 4 and 6, women had higher scores than men. Thus, they were more positive about working with and interacting with the opposite sex than men were about working with other men or with women.

Table 7
Factor Analyses of Postintegration Survey Items
With the Highest Loadings

Factor and Component Items	Loading
<u>Factor 1: Problems Aboard Ship</u>	
I am having problems with safety on base and/or pier area.	.64
I am having problems with safety aboard ship.	.58
I am having problems with access to the chain of command.	.53
I am having problems with performing assigned duties.	.49
I am having problems because of not enough training or direction from supervisors.	.48
<u>Factor 2: Favoritism/Discrimination</u>	
How do you feel the women aboard your ship have been treated overall?	.81
How do you feel the women aboard your ship have been treated in the granting of special privileges, such as leave and liberty?	.66
How do you feel the women aboard your ship have been treated in respect to discharges and reassignments?	.65
How do you feel the women aboard your ship have been treated in respect to discipline?	.65
How do you feel the women aboard your ship have been treated in awarding performance marks?	.63
How do you feel the women aboard your ship have been treated in respect to policies on uniforms and general personal appearance?	.57
<u>Factor 3: Interaction with Women</u>	
How do you feel about most of your female supervisors?	.72
How do you feel about most of the women you work with?	.68
Are you having problems with resentment from crew members of the opposite sex?	-.38
Are you having problems working with female crew members?	-.38
<u>Factor 4: Interaction with Men</u>	
How do you feel about your male supervisors?	.70
How do you feel about most of the men you work with?	.55
<u>Factor 5: Performance Pressure</u>	
Are you having problems proving yourself to superiors?	.81
Are you having problems proving yourself to people at your level or below?	.68
<u>Factor 6: Working with the Opposite Sex</u>	
Women are not adequately trained to perform their duties.	.45
I find working with women/men to be distracting.	-.45
Being on a ship with women/men has caused problems with my mate or girlfriend/boyfriend.	-.34
Men and women work well together on this ship.	-.33
<u>Factor 7: Impact</u>	
What effect has the addition of women to the ship had on team efforts and cooperation?	.75
What effect has the addition of women to the ship had on general cleanliness and appearance of the ship?	.70
What effect has the addition of women to the ship had on the quality of work that gets done?	.70
What effect has the addition of women to the ship had on leadership and supervision?	.70
What effect has the addition of women to the ship had on the amount of work that gets done?	.66
What effect has the addition of women to the ship had on the efficiency of running the ship?	.65
What effect has the addition of women to the ship had on discipline aboard ship?	.62
<u>Factor 8: Traditionalism</u>	
Women are basically nonaggressive and, therefore, will never be good in active combat.	-.71
All occupational fields in the aviation branch (in both support and combat roles) should be open to women.	.70
Women should not be put on combatant ships.	-.69
Given equal training and experience, women would be as good as men in supervising.	.56
Women should be allowed to work at any job they are capable of performing, no matter how nontraditional it is.	.51
<u>Factor 9: Approval of Women on Ship</u>	
Are you now in favor of women being on your ship?	.64
Were you in favor of women being assigned to your ship <u>before</u> they came aboard?	.55
The addition of women has increased my workload.	-.45
The addition of women has lessened my chances for getting the job I want.	-.41
Life aboard ship is more enjoyable, now that women are here.	.41
What effect has the addition of women to the ship had on the morale of the crew?	.41

Note. Factors 7-9 are comprised of items appearing on the men's survey only.

Table 8
Results of ANOVAs to Determine Effects of Pay Grade, Sex,
and Department

Factor	F-ratio and Significance Level		
	Pay Grade	Sex	Department ^a
1. Problems Aboard Ship	7.441***	14.242***	1.650
2. Favoritism	1.170	22.622***	1.330
3. Interaction with Women	13.848***	0.393	1.610
4. Interaction with Men	2.692	14.222***	3.619***
5. Performance Pressure	6.395**	21.221***	1.806
6. Working with Opposite Sex	3.196*	9.950**	1.674
7. Impact ^a	7.872***	N/A	3.316**
8. Traditionalism ^a	4.215**	N/A	1.001
9. Approval ^a	4.875**	N/A	2.115*

Note. The only significant pay grade by gender interaction ($p < .01$) was obtained on factor 6.

^aThese results are based on responses of the male sample only. Officers were not included since there were too few for the planned analyses.

* $p < .05$

** $p < .01$

*** $p < .001$

3. Department Effects. The department effect noted for Factor 4 was primarily due to the fact that those in the administration and engineering departments were negative about the men they worked with, and those in the medical/dental department were positive. Factor 9 showed some interesting reversals: Those in administration were highly positive and those in medical/dental, followed by deck and supply, were negative. Distributions of responses by department for the six major items in this factor, which were obtained to gain an understanding of these results, indicated that men in deck, supply, and medical/dental departments felt that the presence of women had lessened their chances for desirable jobs and increased their workload.

Hypotheses

Two items from Factor 5 were used to test the hypothesis that women, more so than men, would feel the need to prove themselves. Table 9, which presents the response distributions for these items, shows that women were experiencing more pressure from both subordinates and superiors. Thus, the hypothesis was supported.

Table 9
Percentages of Women and Men Experiencing Performance Pressure

Item	Women (N = 117)			Men ^a (N = 900)			χ^2
	Yes (%)	Only At First (%)	No (%)	Yes (%)	Only At First (%)	No (%)	
Are you having problems proving yourself to people at your level or below?	27	21	52	14	24	62	12.885*
Are you having problems proving yourself to superiors?	32	19	49	20	10	70	20.193**

^aIncludes only E-1 through E-6s, so that the male sample will parallel the female sample.

*p < .01

**p < .001

The second hypothesis tested under this survey stated that men in departments having no shore-based parallels would perceive the greatest number of problems arising from the assignment of women to ships. Factor 1 (problems aboard ship) is not an appropriate vehicle for testing this hypothesis because it consists of items concerned with the difficulties experienced by individuals aboard ship. Factor 7, however, is based on items questioning what impact women have had on various aspects of the shipboard environment (see Table 7). As indicated previously, a significant department effect was reported for Factor 7 in Table 9. Men in the deck department saw the greatest positive impact

resulting from the assignment of women, followed by those in supply and the medical/dental departments. Those who were least positive in their judgments were in the weapons, operations, and repair departments. Since two-thirds of the departments responded as expected, this hypothesis was supported.

The third hypothesis tested by the postintegration survey stated that being on an integrated ship would have no effect on retention intentions, and that male and female retention would not differ. This hypothesis was tested by comparing responses to similarly worded items on the preintegration and postintegration forms of the survey. Table 10, which provides results, shows that the retention plans of the men had changed significantly between the administration of the pre- and postintegration surveys; that is, fewer were undecided about their plans, while the proportions of both those reenlisting and those leaving the Navy had increased. There is no certainty, however, that these changes resulted from working in a mixed-gender crew. The career plans of women responding to the postintegration survey did not differ significantly from those of men. Thus, the first half of the hypothesis was rejected, and the second half was supported by the data.

Table 10
Reenlistment Intentions Before and After Integration

Reenlistment Intention	Men		Women
	Preintegration Survey (%)	Postintegration Survey (%)	Postintegration Survey (%)
Reenlisting	26	33	24
Uncertain	48	34	37
Not reenlisting	26	33	39
χ^2	31.622* (pre/post)		1.804 (men/women)

Note. Based on pre- and postintegration responses of crew on one ship.

* $p < .01$.

The last hypothesis, which was based on Kanter's research, stated that women would rate male peers and supervisors as more likeable and easier to work with than females. Table 11 presents the distributions of responses to five pairs of questions addressing this issue. No significance tests were performed on these data, but it appears that women tended to like men more than they liked other women and stated that they had fewer problems working with men.³ Since the response distributions were similar, however, the hypothesis was rejected.

Table 11
Women's Judgment of Same-sex and Cross-sex Interactions
(N = 54)

Item	Percentage Responding			
	Like a lot	Like Somewhat	Dislike Somewhat	Dislike a lot
How do you feel about:				
● Men you work with	55	42	4	0
● Women you work with	50	40	4	6
● Male superiors	49	42	7	2
● Female superiors	38	46	13	3
	Yes, Major	Yes, Minor	Earlier, Not Now	No
Are you having problems:				
● Working with male crew members	2	11	13	74
● Working with female crew members	4	13	11	72
● Taking orders from male superiors	0	11	7	81
● Taking orders from female superiors	0	13	0	86
● Men's behavior toward women	7	22	4	67
● Women's behavior toward men	6	35	9	50

³The significant sex effect obtained for Factor 4 in Table 8 indicated that women liked working with men more than men did. Interestingly, men showed no such cross-sex preference (Factor 3), lending credence to the interpretation that a token/dominant process was occurring, rather than a male/female one.

Other Issues

While some items had been developed to test hypotheses, the majority were concerned with problem identification (Factor 1). As shown in Table 7, the items loading highest on Factor 1 focused on those areas of the ship or job where women might have difficulty. Table 12 shows the eight problem areas cited by at least one-third of the members of one gender. Since Table 8 showed there was a significant main effect for pay grade for Factor 1 and all the women respondents were in the lower pay grades, the distributions reported below are for E-1s to E-6s. Results show that women, to a significantly greater extent than men, were having problems with crowded quarters, tasks involving physical strength, and loss of an allowance paid to those living ashore (BAQ).

Table 12
Sea Duty Assignment Problem Areas Cited by at Least
One-third of Respondents in Pay Grades E-1 to E-6

Problem Area	Percentage Citing as Problem		χ^2
	Women	Men	
Crowded quarters and lack of privacy	61	53	12.999*
Use of profanity by others	38	31	1.912
Tasks requiring physical strength	36	20	14.923**
Not enough training or direction from supervisors	41	29	3.839
Loss of BAQ or Comrats	73	23	58.063**
Boredom	42	46	2.800
Women's behavior toward men (such as snobbishness, uppityness, flirting)	44	41	.209
Men's behavior toward women	35	25	2.159

Notes.

1. The first three problem areas listed above were derived from responses of crews of two ships (N of men = 900, N of women = 117); and the remaining areas, from responses of the crew of only one ship (N of men = 480, N of women = 46).

2. χ^2 was computed on 3 response levels: "Yes," "No," and "Earlier, but not now." Only the proportion choosing "Yes" are included in the table.

*p < .01.

**p < .001.

The last group of items in the postintegration questionnaire addressed the more subjective aspects of how well integration was proceeding. Table 13 presents the proportions of women and men responding either positively or negatively to these items. Chi-squares were computed where appropriate and the differences were found to be significant at the .01 level. Also, pay grade distributions of the men's responses yielded three significant chi-squares, resulting from a greater endorsement of the items by E-1s to E-3s and a lower rate of agreement by E-4s to E-6s. That is, over 70 percent of the nonrated men felt men and women work well together, felt that life aboard an integrated ship is more enjoyable, and favored having women on their ship.

Table 13
Crew's Judgment of Success of Integration

Item	Yes		No	
	Men (%)	Women (%)	Men (%)	Women (%)
I find working with women (men) to be distracting.	26	6	52	87
Being on a ship with women (men) has caused problems with my mate/girl friend (boy friend).	14	37	75	64
The addition of women has increased my workload.	18	N/A	61	N/A
Men and women work well together on this ship.	66	87	10	6
Life aboard ship is more enjoyable, now that women are here.	52	N/A	24	N/A
Were you in favor of women being assigned to your ship before they came aboard?	50	N/A	23	N/A
Are you now in favor of women being on your ship?	55	N/A	22	N/A

Note. The undecided response was omitted from the table. The chi-squares computed for items administered to both men and women were all significant at the .01 level.

Observations Recorded

Although the survey was not designed to investigate some of the other phenomena noted by Kanter in skewed civilian organizations, the journals of the participant/observers provided examples of similar dynamics occurring aboard Navy ships. "Boundary heightening" is a term used to describe the manner in which the dominants emphasize their differences or those of the tokens, sometimes for the purpose of exclusion. The behavior of a male petty officer who supervised several nonrated women provides an excellent illustration of this type of behavior. On several occasions, he referred female crew members to the medical department for pregnancy testing when they cried in response to his disciplinary measures. Another example noted on several ships was that women did not spend their leisure time in the first class petty officer lounge where TV, movies, and reading materials were available. When asked the reason for this, the answer invariably was that the men used overly profane language in the lounge.

Another concept of Kanter's is role entrapment, which results in the tokens being treated in general terms rather than as individuals. The observers on one ship noted that every department had its "pet" woman, an unofficial mascot who was considered a good sport and who received preferential treatment. Another type of role entrapment noted was the transferring of women petty officers, working in nontraditional ratings, to clerical-type jobs against their wishes and those of their immediate supervisors.

The highly visibility of the tokens was a theme running throughout the journals. Crews of integrated ships were greeted by other ships with banners saying, "Welcome, Love Boat." The press eagerly reported the number of women unable to deploy because of pregnancy, but not the number of men unable to deploy because of unauthorized absences. This type of attention caused resentment among the men and made it harder for women to become integrated.

CONCLUSIONS

The analysis of the preintegration survey, administered to over 1300 men, revealed strong individual and organizational effects. Nonrated men, who would become the peers of two-thirds of the women, held the most traditional beliefs about women's personality traits and their role in the Navy. Yet, more than any other group, nonrated men liked working with women. Not surprisingly, men who are making a career of the Navy (older, higher pay grade) were content to work in a totally male environment. It is probable that this group will be most resistant to women in the crew.

The belief that women would receive preferential treatment, held by the crews of some ships and prevalent in some departments aboard ship, suggests that the equal opportunity climate in these environments is (and possibly will continue to be) less than optimal. However, this finding could be a reflection of the variable quality of the different workshops preparing the men for integration (ship effect) or a lack of experience with mixed gender work groups (department effect).

Supervisors should be pleased by the goal orientation of female crew members; 25 percent of the women view sea duty as an opportunity for expanding their job skills versus 5 percent of the men. Men who will be competing with them for assignments and advancement, however, may feel somewhat threatened.

Since only one Navy vessel has completed the postintegration survey [as of August 1980], the results should be considered tentative. Nevertheless, certain phenomena observed by Kanter in skewed civilian organizations seem to be operating on this ship. Women were feeling more performance pressure than were their male peers and there is evidence that they were responding to loyalty-testing.

Organizational factors seemed to be playing a strong role in molding men's reactions to the women in the crew. Nonrated men were very positive about the changes that had occurred aboard the ship and about their interactions with women. Junior petty officers were the least positive toward integration of any group, perhaps because of the

competition the women presented. Chief petty officers seemed to be taking a pragmatic view. Unlike nonrated men, chiefs liked working in an all-male environment, yet they approved of integration at sea--even on combatant vessels. From observations noted, it appears that the chief petty officers have a positive attitude because they now have enough people to get the job done.

Department effects were also evident. The men in weapons departments were the least positive in their attitudes, perhaps because they also reported that the addition of women had increased their workload. However, the acceptance of women into the deck department is surprising. Boatswain's mates, who run the day-to-day world of the deck crew, are the "saltiest" of sailors. The work on deck is heavy, dirty, and highly dependent on upper body strength, where women are at a disadvantage.