

Research Report 1330

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THE EFFECT OF INTERGROUP CONTACT ON ATTITUDES TOWARD THE ROLE OF WOMEN IN THE ARMY

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completed a questionnaire which contained a scale designed to measure attitudes toward the role of women in the Army. An analysis of variance revealed that the proportion of women in the work group was significantly related to male attitudes, with attitudes becoming less positive as the proportion of women in the work group increased. The size of the work group was unrelated to the attitude scale scores of either male or female subjects. The implications of the findings for the enhanced utilization of women in the Army are discussed.



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WOMEN IN THE ARMY**

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FOREWORD

The U.S. Army Research Institute for the Behavioral and Social Sciences has conducted two behavioral science research efforts which contributed, along with other research investigations and sources, to the determination of long-range Army policy on the utilization of women in the Army. The first of these, MAX WAC, showed that the number of women (up to 35%) had no significant effect on the operational capability of company-size combat service and combat service support units as measured by ratings on 72-hour Army Training Evaluation Programs (ARTEPs). The second major research effort, REF WAC, demonstrated no significant impairment of performance in combat service and combat service support units containing women during an extended (11-day) field training exercise.

Although no decrement in performance occurred during the REF WAC field exercise, it was found that attitudes of enlisted males toward the role of women in the Army were less positive than those of female soldiers. The research reported here is a re-analysis of the attitudinal data collected for the REF WAC research. This analysis sought to answer the question, not asked in the original analysis, of whether or not increased contact with women in their work units was associated with a change in male attitudes toward the role of women in the Army. The findings of this research have implications for the training of female enlisted personnel and for the development of the leadership and management skills of their supervisors.



EDGAR M. JOHNSON
Technical Director

THE EFFECT OF INTERGROUP CONTACT ON ATTITUDES TOWARD THE ROLE OF WOMEN
IN THE ARMY

BRIEF

Requirement:

The US Army Research Institute for the Behavioral and Social Sciences (ARI) conducted research on the performance of male and female enlisted personnel during an 11-day field training exercise (FTX). The resulting data implied that female soldiers were more positive toward the role of women in the Army than were male soldiers (Johnson, Cory, Day, & Oliver, 1978). The present research is a secondary analysis of the data collected for the study described by Johnson et al. (1978). The purpose of the research reported here was to determine the relationship of the proportion of women in a work group and work group size on attitudes toward women in the Army.

Procedure:

Male and female soldiers completed questionnaires that included demographic items and a scale of attitudes toward the role of women in the Army. Questionnaire data were available for 1164 men and 135 women who reported being in work groups of five or more people. The analysis investigated the relationship of attitudes to the size of the work group (small = 5-12 people; large = 13 people or more) and the proportion of women in the work group (0%, 1%-14%, 15% or more).

Findings:

The attitudes of male soldiers toward the role of women in the Army tended to become less positive as the proportion of women in their work groups increased. That is, the men with the most positive attitudes were those with no women in their work groups, while men with the least positive attitudes had been in work groups containing 15% or more women. These differences were small but significant. No significant relationship was found between work group size and the attitudes of male enlisted personnel, nor was there any relationship between the female soldier attitudes toward the role of women in the Army and either work group size or the proportion of women in the work group. Thus, male attitudes toward the role of women in the Army seem to be less positive after working with women in a relatively short and stressful field training situation. Three factors may be associated with this finding: the presence of stress, physical differences between men and women, and differential treatment of men and women.

Utilization of Findings:

The findings of this research have implications for training of women and for improving techniques of those who work in leadership positions. Female soldiers participating in an FTX need knowledge of field conditions and tactical operations and also training to prepare them for FTX participation. Army leaders need to have a greater awareness of ways individuals can compensate for less physical strength and to know how to train their personnel to make use of compensatory techniques. Army leaders also need to become more sensitive to the dangers of differential treatment of male and female soldiers and to make every effort to avoid favoritism of any sort.

THE EFFECT OF INTERGROUP CONTACT ON ATTITUDES TOWARD THE ROLE OF WOMEN
IN THE ARMY

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THE EFFECT OF INTERGROUP CONTACT ON ATTITUDES TOWARD THE ROLE OF WOMEN IN THE ARMY¹

INTRODUCTION

Background

Research on racial integration has demonstrated that negative attitudes toward minorities can change as a function of contact with the minority group. Members of integrated Army units during World War II, for example, developed more positive attitudes toward black soldiers than did members of nonintegrated groups (Stouffer, 1949). In his survey of the literature on intergroup contact, Amir (1969) concluded that such contact may facilitate better intergroup relationships ("contact hypothesis") when certain conditions hold. These conditions include: (1) members of both groups are of equal status and share similar background characteristics; (2) the authority structure supports intergroup contact and equalitarianism; (3) interactions of the two groups are close and intimate rather than superficial in nature; (4) both groups share a common goal.

Although the research on racial integration may be relevant to male-female integration, research findings on the integration of women into the service academies have been inconclusive concerning the effect of contact with women on the attitudes of their male counterparts. Earlier research at West Point (Priest, Vitters, & Prince, 1978) and the Air Force Academy (DeFleur, Gillman, & Marchak, 1978) demonstrated that male attitudes toward women may initially become more negative after intergroup contact. DeFleur et al. (1978) assessed the attitudes of entering cadets before and after a six-week Basic Cadet Training (BCT) program which occurred during the summer preceding the cadets' first year at the Air Force Academy. BCT was a strenuous period of training in a rugged field environment. DeFleur et al. found that male attitudes toward women's role in general and toward women at the Air Force Academy became more traditional over the six-week period. ("Traditional" attitudes may be defined as the opinion that women should be doing jobs which are traditionally "female jobs" such as domestic, nursing, and teaching, as opposed to less traditional jobs such as leadership and management, highly technical jobs, outdoor work, or jobs which are physically demanding.) Priest et al. (1978) evaluated the effect of BCT on entering West Point cadets. Their findings were similar to those of DeFleur et al. as they reported that, in general, "the effect of contact with women under the stressful, competitive conditions of BCT was negative" (p. 596). However, subsequent research at the Air Force Academy (DeFleur, Note 1) showed that the attitudes of male cadets toward women became more positive over a period of four years. The Air Force Academy research and research conducted at West

¹The author wishes to express her appreciation to Dr. John Mellinger for statistical consultation, to Mr. Sidney Sachs and Mrs. Claudia Bivins for statistical analyses, to Ms. Barbara Williams for literature review and data checking, and to Dr. John Mietus and Dr. Melvin Kimmel for helpful comments. An earlier version of this paper was presented at the meeting of the American Psychological Association, Los Angeles, August 1981.

Point (Adams, Note 2) found that the attitudes of each incoming class of males were less traditional toward the role of women. Thus it is not clear that long-term intergroup contact necessarily leads to less traditional attitudes.

Durning (1978) found that after five months of contact, men in mixed (i.e., male and female platoons or squads) held less traditional attitudes toward women than did men in mixed companies who had no women in their platoons or squads. Men in all-male companies had attitudes in between. After an additional seven months of contact, however, there were no significant differences among the three groups and all men had become significantly less traditional in their attitudes. Durning notes that although these differences were statistically significant, they were very small in an absolute sense. From the findings of her research, Durning (1978) concluded that there was no simple effect of intergroup contact on male attitudes and suggested that work group size may be an important variable in assessing the effect of intergroup contact.

In a field study conducted in a large industrial corporation, Kanter (1977) concluded that the proportion of minority members in a group may be a crucial structural variable, and proposed that larger proportions of minority members would be associated with greater acceptance by the group.

Purpose of Research

The purpose of the research reported here was to determine the effect of various proportions of women in a work group and the size of the work group on attitudes of Army enlisted personnel toward the role of women in the Army. The specific research questions to be explored for male and female enlisted personnel were:

- (1) Does the proportion of women in work groups systematically affect attitudes of both men and women toward the role of women in the Army?
- (2) Does the size of the work group affect attitudes?
- (3) Do the proportion of women and the size of the work group interact to affect attitudes?

METHOD

Data used in this secondary analysis were collected as part of a large-scale investigation conducted by the Army Research Institute (ARI) on the performance of male and female soldiers (Johnson, Cory, Day, & Oliver, 1978). The sample for the present study was a subset of a larger group of male and female service members who were the subjects of the research described in Johnson et al. (1978). See Johnson et al. (1978) for details concerning the instruments, subjects, and procedures used in that research.

Instrument

The questionnaire used in this research contained a measure of attitudes toward the role of women in the Army that was developed at the Army Research

Institute (ARI) specifically for use with an Army population (Woelfel, Savell, Collins, & Bentler, 1976). The present research analyzed data from six of the seven items contained in the original scale and followed the procedure described by Savell (Note 3). Scores on the scale can range from six to thirty. Lower scores indicate more traditional attitudes toward women: the Army's mission is best carried out by men only, the Army would become less effective if women were assigned to combat jobs, etc. Higher scores indicate more liberal attitudes--i.e., having women in the Army helps make the Army better and more effective. Reliability of the scale is in the 70's (Cronbach's alpha), and it correlates significantly, in the expected directions, with education ($p < .001$) and sex ($p < .001$) (Savell, Note 4). The scale was embedded in a questionnaire administered at the end of an 11-day field training exercise. The questionnaire also contained items concerning the respondent's gender, size of his or her everyday work group, and the number of women in the work group. In addition, the questionnaire included other items used in the primary data analysis reported by Johnson et al. (1978).

Subjects and Procedure

The subjects for this research were personnel of 22 company-size Army units (approximately 150 people per company) participating in an extended (11-day) field training exercise in West Germany. Questionnaires containing the ARI attitude scale and demographic data were administered to all enlisted personnel at the conclusion of the field training exercise. Questionnaire data were available from 1164 men and 135 women who reported being in work groups of five or more people.

Design and Analyses

Scores on the ARI attitude scale constituted the dependent variable for all analyses. A two-way unweighted means analysis of variance (ANOVA) was conducted for the male sample and also for the female sample. The two factors were size of work group and proportion of women in the work group. There were two levels of size of work group: small (groups of five to twelve persons) and large (groups of thirteen or more people). For analysis of the male data, there were three levels of proportion of women in the work group: 0%, 1%-14%, and $\geq 15\%$. For analysis of the female data, there were only two levels of this factor since no woman was in a work group which had 0% women in it.²

RESULTS

Table 1 contains the means on the ARI attitude scale scores for male and female service members in large and small work groups with various proportions of women. As can be seen in Table 1, women have substantially higher scores

²The original intention was to use four levels of the proportion of women factor. However, only a small number of cases fell into the category " $\geq 35\%$." Accordingly, the two highest cells were collapsed to form a " $\geq 15\%$ " level for that factor.

(less traditional attitudes) than do men.³ The analysis of variance conducted on the female data revealed no significant main effects for either group size or proportion of women. Nor was the interaction of the two factors significant.

Table 1

Mean Scores on ARI Attitude Scale for Male and Female Service Members in Small and Large Work Groups with Varying Proportions of Women

Gender	Small Work Groups			Large Work Groups		
	0%	1-14%	≥15%	0%	1-14%	≥15%
Males M	14.78	14.40	13.65	14.76	13.95	13.57
(n)	(280)	(73)	(187)	(290)	(237)	(97)
Females M	a	20.31	20.52	a	19.69	19.71
(n)		(16)	(80)		(26)	(14)

^aSince no women were in work groups containing 0% women, these cells are empty.

The male data in Table 1 are depicted graphically in Figure 1. Both the table and the figure show that male attitudes toward women were least traditional in groups containing no women and became more traditional as the proportion of women in the work group increased. This result held for both the larger and smaller work groups. The analysis of variance revealed a significant main effect of proportion of women in the work group ($F = 4.71$, $df = 2/\infty$, $p < .01$). Neither the main effect for size of work group nor the interaction of work group size and proportion of women was significant.

DISCUSSION

Conclusions

The results of this research demonstrated that attitudes of male enlisted personnel toward the role of women in the Army were related to the proportion of women in their work group but not to the size of the work group or to the interaction of proportion of women and work group size. Contrary to predictions based on the contact hypothesis, however, increasing contact with women tended to produce more rather than less traditional attitudes. Attitudes of female enlisted personnel were unrelated to the proportion of women in the work group or to the size of the work group.

³A previous analysis of these data demonstrated that the difference between male and female scores was significant ($F = 234.12$, $df = 1/\infty$, $p < .0001$).

Mean Scores on "Attitudes toward the Role of Women in the Army" Scale

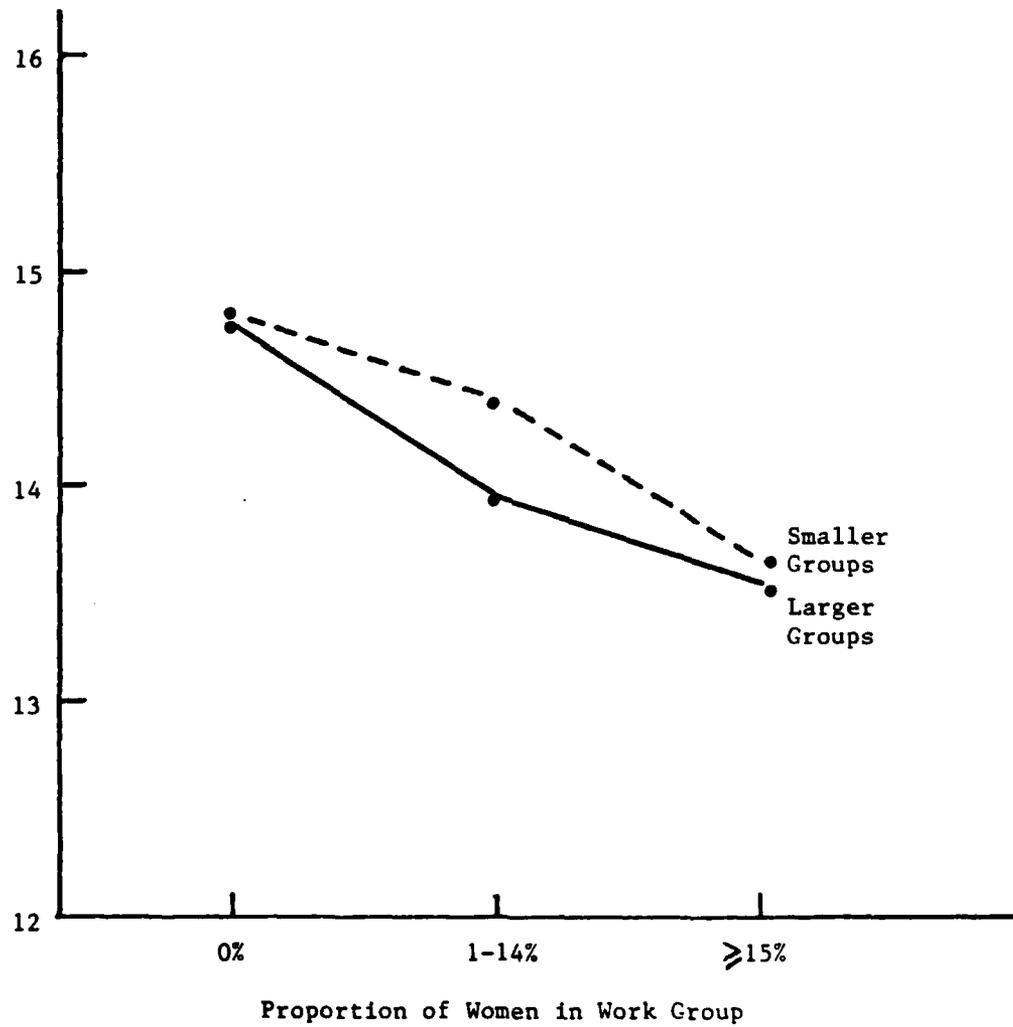


Figure 1. Attitudes of male enlisted personnel toward women in the Army as a function of proportion of women and size of work group.

The findings reported here support the early research on attitudes of male cadets at West Point and the Air Force Academy. In these two instances, male attitudes toward women's role became more traditional after a short period of contact under stressful (BCT) field conditions. Durning's (1978) findings were somewhat different, perhaps because her measures were administered after longer periods of time. Durning found that Naval Academy cadets who worked with women in small groups (platoons or squads) had significantly less traditional attitudes after five months of contact than cadets who had not worked with women in platoons or squads. These group differences disappeared after a year of contact, however, and the attitudes of all male cadets became significantly less traditional.

Possible Explanations for Negative Male Attitudes

The question arises, then, as to why male attitudes toward the role of women in the Army were more traditional if the men had worked in groups containing women during the field training exercise. There were three inter-related factors found in this research, as well as previous studies, which may be involved. These factors were: the presence of stress, the physical differences between men and women, and the differential treatment of men and women.

In this instance, the lack of amenities, the constant cold, and the uncertainties of the wargame aspect of the field exercise combined to make the field experience more rigorous than garrison conditions. Researchers investigating the effects of the integration of women in the service academies all noted that those environments were viewed as stressful, with the Air Force and West Point cadets functioning in a field environment during the initial period of contact (DeFleur et al., 1978; Durning, 1978; Priest et al., 1978).

Interacting with these circumstances was the physical difference factor. The average woman differs considerably from the average man in the military in physical characteristics, especially in upper torso strength (Johnson et al., 1978).⁴ Because of physical differences, some of the service academy requirements for women were adapted to the women's lesser physical strength. At West Point, for example, the women were trained with a different weapon and had self-defense substituted for boxing.

Differential treatment, however, can be interpreted as favoritism and may possibly lead to hostility and resentment on the part of men. At the Naval Academy, 80% of the plebe (first-year) men believed women received favoritism from physical education instructors (Durning, 1978). Priest et al. (1978) reported that, at the end of BCT, West Point male cadets perceived favoritism toward women and the female cadets perceived greater inconsistency of treatment (i.e., being treated more kindly or more harshly at different times). De Fleur et al. (1978) also believed that the failure of the women at the Air Force Academy to achieve the same level of physical performance

⁴ Priest et al. (1978) reported large differences between male and female cadets with "practically no overlap between male and female measurements" on some physical variables (p. 593).

as the men contributed to negative male attitudes. Women were considered a hindrance in integrated squadrons because the men believed women slowed the squadron and thereby reduced its effectiveness.

As reported in Johnson et al. (1978), favoritism was also an issue. Over half the male enlisted personnel in the 22 participating companies believed that women received more privileges and easier jobs, but women's perceptions differed from those of the men. Only 16% of the women believed women had more privileges, while 30% felt women got easier jobs.

Implications for Research and Training

Since work groups were not of the same size, a given proportion of women may not have had the same effect in groups of different sizes. A 20% fill for a group of five requires only one woman, while 20% in a group of 15 requires three women. But these two work groups may be perceived as very different even though the proportion of women in them is the same. Kanter (1977) has suggested that when the proportion of the minority is too small, attitudes may be toward tokenism rather than toward gender. Some of the findings in this study might be clarified if proportions of women could be varied across work groups of the same size. Measures of attitudes and performance might then demonstrate systematic variations as a function of proportion of women in a group. Such research is difficult or impossible in a field situation where naturally occurring groups can rarely furnish the desired sizes and proportions in adequate numbers.

Another research factor which would greatly improve the quality of results would be to have pretest data available. Although the questionnaire containing the attitude scale was administered prior to the FTX, it was not possible to tie pretest scores to posttest scores for individuals. To have pretest and posttest scores available for each subject would enable researchers to look at attitude changes as a function of the FTX experience.

These findings have implications for training of women and for improving leadership and management techniques of those who work most closely with women in the Army. Johnson et al. (1978) concluded that female participants in the FTX "demonstrated a general lack of training for and knowledge of life in the field and of tactical operations" (p. IV-5). At the time these women received their basic training, it differed from that given to male soldiers; the more similar types of training women now receive should prepare them more effectively for functioning in the field. Women may also be taught how to compensate for lack of strength. Army leaders have a role to play in preparing women for and utilizing them effectively in field training exercises.

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