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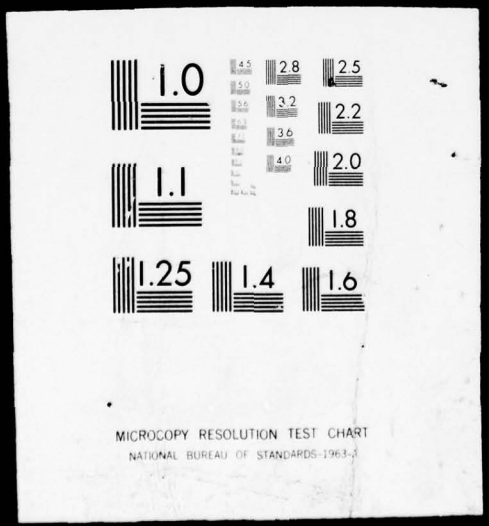

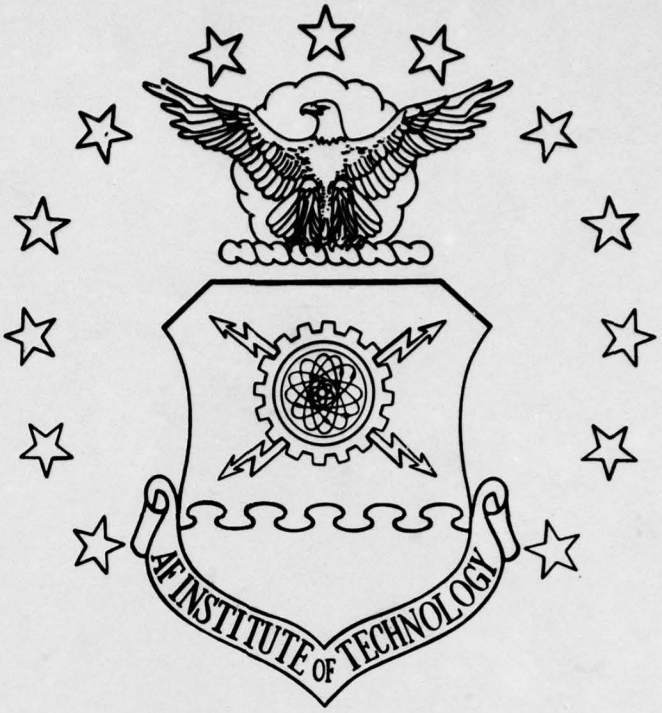

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(10) Sharla J. Cook, Captain, USAF
David R. Wilkey, First Lieutenant, USAF

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This research examines the extent to which role stereotypes are perceived to exist for and impact the job socialization of Air Force enlisted women in selected craft skills and the extent to which these perceptions and impacts parallel those reported to exist for civilian women in similar occupations. The perception of role stereotypes and the perceived impacts on job socialization are measured using a questionnaire designed by the authors and incorporating questions developed in previous civilian studies. The population surveyed included all women then working in the career fields examined. Findings include: Air Force enlisted women do perceive the existence of a negative assessment of competency, male-oriented physical and operational job standards, and overprotection; Air Force enlisted women actively reject the existence of the role stereotypes fear of success and role definition/prescription; the impact of perceived role stereotypes on the socialization factors of job satisfaction, coworker relations, and supervisory treatment parallels the impact reported for civilian women. That is, the higher the level of perceived role stereotypes, the lower the level of perceived job socialization. The study recommends specific plans to be developed and implemented, designed to reduce the impact of role stereotypes and improve job socialization.

LSSR 6-77A

SOCIAL PROBLEMS OF ENLISTED WOMEN IN UNITED STATES AIR FORCE CRAFT SKILLS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

Sharla J. Cook, BS
Captain, USAF

David R. Wilkey, BS
First Lieutenant, USAF

June 1977

This thesis, written by

Captain Sharla J. Cook

and

First Lieutenant David R. Wilkey

has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

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DATE: 15 June 1977

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CHAPTER I

INTRODUCTION

Statement of the Problem

Much of the current research on the organizational behavior of women has been focused upon defining role stereotypes and measuring the impact of these stereotypes upon the ways in which female managerial employees are socialized into work organizations. These studies also imply that the existence of stereotypes detracts from the effectiveness with which women are able to adapt to and produce within the work environment (4; 9; 29; 31). A review of the literature revealed that, with few exceptions (3; 23; 26; 28), this research has focused principally upon public and private civilian organizations.

The research problem is that no research has been conducted to determine the extent to which these stereotypes apply in the Air Force, and the extent to which they may reduce the effectiveness and productivity of enlisted women in the USAF craft skills.

Background

Women comprise 40 percent of the United States workforce. Most of these women are employed in the

service industry: i.e., education services, medical-health services; and personal services, including those in hotels and private homes (47:3). During 1973, the trade industry was the second largest employer of women, most of whom held jobs in retail stores (47:5). However, between 1960 and 1970, the number of women working in the "skilled occupations" increased 80 percent (20:14). The term "skilled occupations" as used in this paper conforms to the Bureau of Census classification (see Table 1). These were "skilled occupations" which previously had been predominately "all male" skills.

A combination of legal, social and economic factors has affected the significant increase in the relative importance of the skilled occupations for women (20:21). The major legal factor was Title VII of the 1964 Civil Rights Act which prohibited discrimination in employment based on sex (20:17). Social factors were basically a result of the "Women's Liberation Movement" (20:17). This movement, currently characterized by sharp disagreement over basic goals and theories (41:500), still emphasizes its unity on equal employment opportunity, measured not only in terms of fair hiring practices but also in terms of job design, appraisal, travel, promotion, transfer, layoff, discipline, recognition, and benefits (9:175). Economic factors have included a drive for "equal pay for equal work," and a desire to find employment

TABLE 1

WOMEN EMPLOYED IN THE SKILLED TRADES, BY DETAILED TRADE, 1960 AND 1970

Trade[1]	Number of women employed			Women as percent of total	
	1960[2]	1970	Change, 1960–70	1960	1970
Total	277,110	494,871	217,731	3.1	5.0
Automobile accessories installers	----------	297	297	------	4.4
Bakers	20,283	32,665	12,382	18.0	29.8
Blacksmiths	101	249	148	.5	2.4
Blue-collar worker supervisor, n.e.c.	77,728	127,751	50,023	7.2	8.0
Construction	206	1,608	1,402	.2	1.1
Durable manufacturing	14,724	25,539	10,815	4.1	4.6
Nondurable manufacturing, including not specified	40,882	52,193	11,311	13.9	14.4
Transportation, communications, and other public utilities	2,480	5,676	3,196	1.2	3.7
All other industries	19,436	42,735	23,299	9.1	11.8
Boilermakers	41	371	330	.2	1.3
Bookbinders	16,513	19,461	2,948	57.9	57.1
Brickmasons and stonemasons	722	2,049	1,327	.5	1.3
Bulldozer operators	----------	1,151	1,151	------	1.3
Cabinetmakers	891	3,429	2,538	1.3	5.1
Carpenters	3,312	11,059	7,747	.4	1.3
Carpet installers	----------	754	754	------	1.7
Cement and concrete finishers	100	908	808	.2	1.4
Compositors and typesetters	15,494	23,962	8,468	8.2	15.0
Crane, derrick, and hoist operators	656	1,952	1,296	.5	1.3
Decorators and window dressers	23,566	40,408	16,852	46.3	57.6
Dental laboratory technicians	641	6,057	5,416	4.3	22.7
Electricians	2,483	8,646	6,163	.7	1.8
Electric power and cable installers	1,648	1,457	−191	2.1	1.4
Electrotypers and stereotypers	72	283	211	.8	4.0
Engravers, except photoengravers	1,948	2,333	385	17.3	26.6
Excavating, grading, road machine operators except bulldozer operators	688	2,513	1,825	.4	1.1
Floor layers, except tile setters	882	364	−518	4.9	1.7
Forge and hammer operators	769	724	−45	6.4	4.7
Furniture and wood finishers	768	3,600	2,832	3.5	16.9
Furriers	1,936	461	[3]−1,475	40.4	17.3
Glaziers	227	783	556	1.3	3.1
Heat treaters, annealers, and temperers	293	598	305	1.4	2.9
Inspectors, scalers, and graders, log and lumber	798	1,877	1,079	3.9	11.0
Inspectors, n.e.c.	5,670	8,865	3,195	5.8	7.5
Construction	100	334	234	.7	1.5
Railroads and railway express service	76	247	171	.3	1.0
Jewelers and watchmakers	2,239	4,285	2,046	6.0	11.5
Job and die setters, metal	322	2,221	1,899	.6	2.6
Locomotive engineers	85	396	311	.1	.8
Locomotive firemen	104	151	47	.3	1.2
Machinists	6,685	11,787	5,102	1.3	3.1
Mechanics and repairers	18,329	49,349	31,020	.9	2.0
Air conditioning, heating, and refrigeration	125	1,065	940	.2	.9
Aircraft	1,668	4,013	2,345	1.5	2.9
Automobile body repairers	----------	1,332	1,332	------	1.2
Automobile mechanics	2,270	11,130	8,860	.4	1.4
Data processing machine repairers	----------	864	864	------	2.7
Farm implement	----------	420	420	------	1.2
Heavy equipment mechanics, including diesel	3,345	10,768	7,423	1.2	1.8
Household appliance and accessory installers and mechanics	----------	2,550	2,550	------	2.1
Loom fixers	208	437	229	.9	2.1
Office machine	279	688	409	.9	1.7
Radio and television	1,688	5,032	3,344	1.7	3.7
Railroad and car shop	332	510	178	.6	.9
Other	8,414	10,540	2,126	1.2	4.2
Millers, grain, flour, and feed	64	161	97	.7	2.3
Millwrights	80	903	823	.1	1.2
Molders, metal	1,452	5,757	4,305	2.9	10.6
Motion picture projectionists	390	670	280	2.2	4.2
Opticians and lens grinders and polishers	3,045	6,121	3,076	15.0	22.3
Painters, construction and maintenance	6,449	13,386	6,937	1.9	4.1
Paperhangers	1,455	1,111	[3]−344	6.0	10.8
Pattern and model makers, except paper	647	1,858	1,211	1.6	4.8
Photoengravers and lithographers	2,847	3,851	1,004	10.4	11.8
Piano and organ tuners and repairers	153	330	177	2.5	4.8
Plasterers	158	435	277	.3	1.5
Plumbers and pipe fitters	952	4,110	3,158	.3	1.1
Power station operators	1,375	557	[3]−818	5.1	3.0
Printing press operators	4,848	13,374	8,526	5.8	8.5
Rollers and finishers, metal	802	1,264	462	4.2	6.4
Roofers and slaters	107	749	642	.2	1.3
Sheetmetal workers and tinsmiths	1,530	2,902	1,372	1.1	1.9
Shipfitters	----------	123	123	------	1.2
Shoe repairers	2,759	6,359	3,600	6.7	20.3
Sign painters and letterers	1,286	1,614	328	4.6	8.5
Stationary engineers	1,563	2,472	909	.5	1.4
Stone cutters and stone carvers	132	445	313	2.0	7.0
Structural metal workers	909	883	−26	1.5	1.2
Tailors	21,728	21,265	[3]−463	26.5	31.4
Telephone installers and repairers	3,018	8,289	5,271	2.0	3.5
Telephone line installers and repairers	824	762	−62	2.0	1.5
Tile setters	----------	378	378	------	1.2
Tool and die makers	1,128	4,197	3,069	.6	2.1
Upholsterers	5,668	9,980	4,312	9.4	16.0
Craft and kindred workers, n.e.c.	5,777	7,339	1,562	6.7	8.5

[1] Some of the occupational titles that appear in this table and elsewhere in the article are recent modifications of older titles which denoted or connoted sex stereotyping. The new titles were accomplished by a subcommittee of the Interagency Committee on Occupation Classification, under the auspices of the Office of Management and Budget. (See "Removal of Sex Stereotyping in Census Occupational Classification," Monthly Labor Review, January 1974, pp. 67–68.)

[2] Adjusted to 1970 occupation classifications. See John A. Priebe, Joan Heinkel, and Stanley Green, 1970 Occupation and Industry Classification Systems in Terms of Their 1960 Occupation and Industry Elements, Technical Paper 26 (Bureau of the Census, 1972).

[3] Also showed a decline in total employment.

SOURCE: 1970 Census of Population, Detailed Characteristics, U.S. Summary, Final Report PC(1)–D1 (Bureau of the Census), table 221.

in the higher paid, skilled occupations. In addition to higher wages, the skilled occupations provide apprenticeship systems offering beginners most of the benefits of fully-qualified workmen (20:15).

At the same time civilian institutions were increasing the number of women in skilled occupations, the United States Air Force developed policies and took actions to change its traditional employment of enlisted women. In 1972, the Air Force adopted plans to increase the number of enlisted women from about 11,500 at the end of fiscal year 1972 to 35,300 at the end of fiscal year 1977, and to greatly expand their use in a wide range of specialties (11:7). Beginning in January 1973, the Air Force opened twelve previously all-male career areas to enlisted women (33:14) (see Table 2). By the end of 1974, the Air Force had 3,197 women assigned to the aircraft maintenance, communications-electronic systems, mechanical-electrical and avionics system career fields (11:8).

The attempt to integrate Air Force enlisted women into these career fields has focused attention on their physical adaptability and the appropriateness of tool sizes (3:2). There are, however, increasing indications that Air Force women in the skilled occupations are also faced with various socialization problems (4:56; 24:1-5;

TABLE 2

NONTRADITIONAL CAREER FIELDS DEFINED

AFSC	Career Field
30XXX*	Communications-Electronics
31XXX*	Missile Electronic Maintenance
32XXX*	Avionics Systems Specialties
42XXX*	Aircraft Systems Maintenance
43XXX*	Aircraft Maintenance
44XXX	Missile Maintenance
46XXX	Munitions and Weapons Maintenance
47XXX	Vehicle Maintenance
53XXX*	Metal Working
54XXX*	Mechanical/Electrical
55XXX*	Structural/Pavements
56XXX	Sanitation

*AFSCs which contain sufficient enlisted women to be surveyed as part of this study.

26:14). A study of enlisted women at a Strategic Air Command Air Force Base indicated that women:

> . . . assigned to the previously male-oriented craft skills are experiencing a variety of social adjustment problems. Conflicts arise between their self-perception as women and the requirements of their work role [26:14].

A study by the Comptroller General of the United States indicated that military women have been assigned to jobs in which they cannot effectively perform because of strength, stamina, and/or other physical limitations (11:13). The study strongly recommended that the military develop physical job standards and measure the capabilities of both men and women prior to assigning them to skilled occupations (11:14). Finally, a study conducted by the Motivation/Communication Branch, Directorate of Personnel Plans, HQ USAF, indicated that both men and women in Air Force craft skills do perceive sexual discrimination in their jobs. Although the sample size used in this study was too small to be significant as a predictor of Air Force-wide attitudes, the study did conclude that:

> -Men co-workers see women as being less utilized on the job, having less responsibility, and having their work judged more leniently
> -Women feel that they are less utilized, that their rank is too low for the work they are doing, [they] have less responsibility, and have their work judged more harshly than men
> -Many women on the job feel that their sex has elicited negative attitudes toward them
> -Supervisors and trainers report making allowances for women that they would not make for men and

being more reluctant to administer disciplinary action against women than against men

-Fifty percent of the supervisors and instructors perceive male peers as treating women as less capable and/or giving them preferential treatment

-Supervisors and instructors see women as being more motivated, easier to train, equally capable of learning job tasks, and better in upgrade training. However, 44% of the supervisors and 23% of the instructors considered women as less capable of performing the job than men [24:4].

Objective

The objective of the research is to identify and measure, from the respondent's viewpoint, the relative degree of importance of role stereotypes which impact enlisted women in the USAF craft skills. This is a first and necessary step in developing programs to alleviate any detrimental impacts of such socialization problems on the productivity of the Air Force's work force.

Scope

The study was designed to analyze a random sample of enlisted women working in USAF craft skills and located at USAF bases in the continental United States. Only those stereotypes identified in the civilian literature were examined.

Research Proposition

The extent to which role stereotypes are perceived to exist for and impact the socialization of Air Force enlisted women in selected craft skills

parallels the extent to which these stereotypes are perceived to exist for and impact the socialization of civilian women in similar occupations.

CHAPTER II

LITERATURE REVIEW

Role Stereotypes

In discussing female adjustment to previously all-male or nearly all-male skilled occupations much of the literature points to the problem of stereotypes. N. T. Feather suggests that people ". . . acquire sets of beliefs . . . about what jobs are more appropriate for males than for females (and vice versa) [13:536]." Feather further suggests that these beliefs or stereotypes encompass not only beliefs about the characteristics of different occupations but the normative expectations regarding appropriate male and female behavior (13:536). When women work in previously all-male or nearly all-male occupations they experience role conflicts created by social pressures to conform to the "appropriate" role standards of society (5:75). This conflict creates unnecessary tension and reduces job satisfaction and commitment. The resulting frustration is likely to impair efforts toward maximizing production.

One theory suggests that stereotypes are basically outer manifestations of self-image and one's image of others. These stereotypes, formed in individual situations early in childhood, become generalized conceptions

and influence attitudes and behaviors in later years. When these general beliefs are accepted by a large segment of society and form the basis for role definition, they become stereotypes (17:140-141).

Stereotypes are neither inherently negative nor positive, but are important factors in defining role perceptions. A stereotype, for this study, is defined as a picture one has in mind when visualizing a "hypothetical" type of person. It exists in the "eye of the beholder" and may not be an accurate perception of reality. Stereotypes are individualized perceptions of what personality traits exist in others, as opposed to what traits really exist (29:239).

> Research demonstrates the contemporary existence of clearly defined role stereotypes for men and women . . . The stereotypic differences between men and women appear to be accepted by a large segment of our society [5:75].

Further, role stereotypes are incorporated into the self-concepts of both men and women (5:76).

> Both men and women are placed into role stereotypes (traits generally ascribed to them by society) and these stereotypes influence their attitudes and behavior [9:173].

Current management literature has expressed concern over possible detrimental effects of these role stereotypes upon the full development of men and women (5; 18; 22).

> Women are perceived as relatively less competent, less independent, less objective, and less logical than men; men are perceived as lacking interpersonal sensitivity, warmth, and expressiveness in comparison

> to women. Moreover, stereotypically masculine traits are more often perceived to be desirable than are stereotypically feminine characteristics. Most importantly, both men and women incorporate both the positive and negative traits of the appropriate stereotype into their self-concepts [5:75].

The literature indicates that role stereotypes affect women workers in several areas. These areas can be termed: (1) The assessment of competence (29:248; 5:75), (2) the fear of success (9:176; 5:76; 13:587), (3) the license for sexual harassment (4:11), (4) the tendency toward overprotectiveness (31:207-216), (5) the lack of physical and operational job standards (3:3; 11:14), and (6) characteristic male-female role definitions or prescriptions (5:75; 13:536-548). Each of these areas will be discussed and defined in more detail in the remainder of this literature review.

The detrimental effects of role stereotyping cannot be eliminated without eliminating the stereotypes themselves. One author suggests: "If the roots of sexual discrimination are to be destroyed, it will first be necessary to end the conditioning to sexual roles passed on from generation to generation [46:44]." Further, the literature strongly indicates that role stereotypes negatively affect working women in terms of job satisfaction, coworker relations and supervisory treatment (4; 9; 13; 11; 23). Thus, these stereotypes may be considered costly in terms of reduced production and efficiency.

Specific Stereotypes

Competency

Inge K. Broverman, et al., while examining sex-role stereotypes in men and women, concluded:

> The male-valued items seem to us to reflect a "competency" cluster. Included in this cluster are attributes such as being independent, objective, active, competitive, logical, skilled in business, worldly, adventurous, able to make decisions easily, self-confident, always acting as a leader, ambitious. A relative *absence* of these traits characterizes the stereotypic perception of women; that is, relative to men, women are perceived to be dependent, subjective, passive, noncompetitive, illogical, etc. [5:66].

Mayer and Bell suggest that competence is a major factor in individuals' perceptions of each other. They stated:

> We see here evidence that women are judged on a different basis than men are, especially by men, who of course, dominate the business world; we need to know how the differences in stereotypes actually affect behavior. . . . We cannot say from these data whether the behavior of decision makers is affected by these different stereotypes, but that is a testable hypothesis [29:249].

Another study indicated that as a whole males and females perceived women as less competent than males and both preferred working for male supervisors (42:29). Shaffer and Wegler concluded that females may be considered more competent by their employers if they adopt a masculine oriented sex-role, but this technique will probably alienate coworkers (40:600). Therefore, this negative assessment of women's competence may

negatively bias their work efforts and lead to a classical "self fulfilling prophecy." As women attempt to achieve relatively lower standards than men, they will in fact perform less well than men in most cases.

Fear of Success

There is evidence that success is perceived to be appropriate based on factors of sex and occupation (13:537).

> Success at an occupation is viewed more positively if this success is consistent with societal conceptions about the sex role than if it is inconsistent [13:537].

Specifically, success was more attractive for males in a male-dominated occupation than for females in the same occupation. Reasons cited for this view included males being viewed as providers of financial support and as the dominant factors in a society which pressures males to succeed and do well. The main responsibility of females was viewed as being the main nurturant caretaker of the family (13:544). A recent study indicated that females are rewarded for being passive and dependent while males are encouraged to be aggressive, competitive and independent (35:5). Women, therefore, are neither pressured to succeed nor socially rewarded when they succeed in nontraditional work environments. Women may fear success because:

> Competent women are attractive to the extent that they retain a feminine sex role perspective and are not strongly motivated to compete successfully with men in masculine activities [40:598].

Women, therefore, achieve success at the risk of social ostracism (40:600).

License for Sexual Harassment

There is evidence to suggest that men coworkers tend to stereotype women in a sexual frame of reference. Working Women United in an informal survey of working women found that 45 percent of those interviewed had experienced some form of sexual harassment (4:17). Sexual harassment can be defined as unwelcomed and/or repeated overt propositions; "friendly" overtures such as unsolicited pats, squeezes and pinches; and unwelcomed and/or repeated exposure to verbal, sexually oriented comments and jokes (26:9). The problem of sexual harassment is compounded by supervisor/subordinate relationships. Advances from bosses, supervisors, or important clients involve an element of coercion and/or threat and require diplomacy (4:17). Sexual advances are not, of course, limited to males but as pointed out by Eli Ginzburg, "since men are most often in positions of power, it [sexual harassment] most often goes the other way [4:17]."

Overprotectiveness

Overprotection for women can be defined as preferential treatment for women involved in dirty, heavy, physical labor and/or dangerous work.

Prior to passage of Title VII of the Civil Rights Act of 1964, provisions of state protective labor laws excluded women from excessive overtime, shift work, or heavy physical demands. Very few of those provisions are enforceable today, except where they provide benefits that can be extended to men (30:18).

These legal provisions are apparently a reflection of the stereotyped weaker and smaller female sex. Protection seems most emphasized when female workers are involved in heavy work demanding strength and stamina, work which is hazardous and work which is performed alone late at night (38:27-28).

> In an informal interview with the Commander of [an Air Force] . . . Organizational Maintenance Squadron [in] . . . 1976, the stereotype of protecting females was identified as one of the aspects of women working on the flight line maintenance crews. He felt some women were incapable of pulling large heavy metal sections from aircraft for repairs. In some instances the men would do her job plus their own, or stop their work to help her move heavy equipment (i.e., electrical or air power carts), thus reducing their own productivity. He felt the United States culture conditioned men to protect females from struggling with heavy, dirty jobs. Informal interviews with a limited number of pilots during March, 1976, revealed that they tended to go easier on their crew chiefs if they were female, and even went so far as not writing up

> discrepancies on actions performed by females when they would normally have written up men for the same actions [26:1].

Further evidence that men stereotypically believe women workers need protection was provided in an article by Jean Moore. In describing women assigned to what were formerly all-male jobs she stated:

> The biggest problem encountered by . . . women on these kinds of jobs was overprotection by the men. The bosses just could not determine whether they should assign her the heavy work, and the other workers were constantly jumping in to help her. This resulted in some interfering with the learning process. But even more serious was the position in which it put her in the eyes of her co-workers.
>
> These situations had to be handled delicately. The men offering the excess [*sic*] assistance appeared to feel "put down" if [a women] made an issue of doing the work herself. Yet, other male workers felt the women were receiving preferential treatment or not pulling their load. It takes skill to say "But I want to do it myself" without offending the helping hand. However, once [a women] was able to diplomatically get this point across, the tension on her was eased. Working relationships improved considerably [31:14-15].

Physical and Operational Job Standards

Another problem area in the adjustment of females to previously all-male or nearly all-male skilled occupations is the need for physical and operational job standards. Most of the tools and equipment in these occupations were designed to meet the needs of an almost totally male work force (10). The tools and equipment are not always adequate or appropriate for females (10).

Thus, work environments have been stereotypically designed for an all-male work force.

Further evidence of male oriented physical and operational job standards was provided in a report to the Congress by the Comptroller General of the United States which indicated that military enlisted women have been assigned to previously all male craft skills with requirements that keep them from working effectively and further, that no standards for strength, stamina or other physical requirements have been established for workers nor have operational requirements been established for most jobs (11:14).

Human engineering, relating human capacities and limitations to the design of work environments, has already measured and developed job standards and physical requirements for a broad range of skilled occupations (8:vii). Human engineering seeks to design,

> . . . specific items of man-operated equipment for the most effective accomplishment of the job . . . as measured by speed and accuracy of human performance, in the use and operation of equipment [48:0-1].

In designing tools and equipment, there are usually three principles which may be followed: design for the average, design for extreme individuals, or design for a specified range. Tools and equipment designed for the average would not be optimum for all people, but collectively, would cause less inconvenience

and difficulty since, by definition, most people would fall into the "average" group. Design for extreme individuals is used when tools and equipment designed for the average person would be unsatisfactory. Design for a specific range is the principle of designing for some specified range (example: 5th to 95th percentiles) (30:358).

Human engineering techniques include an analysis of the task involved, measurement of various physical traits of those who will do the job, an analysis of the tools and equipment required, and decisions on the group of individuals for which to design (32:5-15).

The increase in the number of women in the craft skills suggests a need for an evaluation of work environments. Use of human engineering techniques will allow jobs to be more effectively accomplished by smaller, weaker persons, more particularly by women.

Role Definition/Prescription

In a sense, the role definition/prescription stereotype can be considered a summation of all the previous stereotypes discussed. This stereotype's effects are so strong, however, as to require separate consideration.

In the United States, one stereotype suggests some type of submissive role for women. Strong, assertive, powerful women are not accepted by either men or women as readily as unhappy, complaining weak women (35:3).

This stereotyped role was also indicated by Inge Broverman et al., in a study of men and women in a variety of New England institutions of higher learning. The results:

> Indicate that the concepts of the ideal man and the ideal women in both men and women subjects closely parallel the male and female sex-role stereotypes. The ideal woman is perceived as significantly less aggressive, less independent, less dominant, less active, more emotional, having greater difficulty in making decisions, etc., than the ideal man; . . . Both greater competence in men than in women, and greater warmth and expressiveness in women than in men, then, are apparently desirable in our contemporary society. Furthermore, . . . results suggest that the college population, a group which tends to be critical of traditional social norms and conventions, nonetheless believes that the existing sex-role stereotypes are desirable [5:69].

Further, the Broverman et al., study indicates that "women incorporate the negative aspects of femininity (relative incompetence, irrationality, passivity, etc.) into their self concepts [5:67]." The authors argue that working women experience a "double bind." To the extent that working women adopt the behaviors specified as appropriate for successful workers, they risk censure for their failure to be appropriately feminine; but if they adopt the behaviors that are perceived as feminine, they are necessarily deficient with respect to the general standards for successful worker behavior (5:75).

There are indications that female workers who exhibit "feminine" characteristics are preferred by

supervisors and by employers (40:600). "Feminine" and "masculine" behaviors are defined in Table 3.

Socialization

Much of the literature in organizational socialization has focused on the ways individuals learn the culture and values of their new job settings, the adjustment to the work environment and the development of work skills (14:434). One author has suggested that socialization can be defined as:

> . . . the process by which a new member learns the value system, the norms, and the required behavior patterns of the society, organization, or group which he is entering. It does not include all learning. It includes only the learning of those values, norms, and behavior patterns, from the organization's point of view or group's point of view, it is necessary for any new member to learn [39:3].

For the purposes of this research, socialization is defined as the process of learning the roles and behavior patterns appropriate to the USAF enlisted craft skills measured by three variables: job satisfaction, coworker relations, and supervisory treatment and/or acceptance.

Factors of Socialization

Multiple factors impact upon an individual's adaptation to organizations (6:112; 15:34). These factors cluster in four basic areas, (1) the job itself, (2) the immediate supervisor, (3) coworkers, and (4) the working conditions and environment. Each of these areas

TABLE 3

STEREOTYPIC SEX-ROLE ITEMS
(Responses from 74 College Men and 80 College Women)

Competency Cluster: Masculine Pole is More Desirable	
Feminine	Masculine
Not at all aggressive	Very aggressive
Not at all independent	Very independent
Very emotional	Not at all emotional
Does not hide emotions at all	Almost always hides emotions
Very subjective	Very objective
Very easily influenced	Not at all easily influenced
Very submissive	Very dominant
Dislikes math and science very much	Likes math and science very much
Very excitable in a minor crisis	Not at all excitable in a minor crisis
Very passive	Very active
Not at all competitive	Very competitive
Very illogical	Very logical
Very home oriented	Very worldly
Not at all skilled in business	Very skilled in business
Very sneaky	Very direct
Does not know the way of the world	Knows the way of the world
Feelings easily hurt	Feelings not easily hurt
Not at all adventurous	Very adventurous
Has difficulty making decisions	Can make decisions easily
Cries very easily	Never cries
Almost never acts as a leader	Almost always acts as a leader
Not at all self-confident	Very self-confident
Very uncomfortable about being aggressive	Not at all uncomfortable about being aggressive

TABLE 3--Continued

Competency Cluster: Masculine Pole is More Desirable	
Feminine	Masculine
Not at all ambitious	Very ambitious
Unable to separate feelings from ideas	Easily able to separate feelings from ideas
Very dependent	Not at all dependent
Very conceited about appearance	Never conceited about appearance
Thinks women are always superior to men	Thinks men are always superior to women
Does not talk freely about sex with men	Talks freely about sex with men
Warmth-Expressiveness Cluster: Feminine Pole is More Desirable	
Feminine	Masculine
Doesn't use very harsh language at all	Uses very harsh language
Very talkative	Not at all talkative
Very tactful	Very blunt
Very gentle	Very rough
Very aware of feelings of others	Not at all aware of feelings of others
Very religious	Not at all religious
Very interested in own appearance	Not at all interested in own appearnce
Very neat in habits	Very sloppy in habits
Very quiet	Very loud

TABLE 3--Continued

Warmth-Expressiveness Cluster: Feminine Pole is More Desirable	
Feminine	Masculine
Very strong need for security	Very little need for security
Enjoys art and literature	Does not enjoy art and literature at all
Easily expresses tender feelings	Does not express tender feelings at all easily

SOURCE: Inge K. Broverman, Susan R. Vogel, Donald M. Broverman, Frank C. Clarkson, and Paul S. Rosenkrantz. "Sex-Role Stereotypes: A Current Appraisal," *Journal of Social Issues*, Vol. 28, No. 2 (February, 1972), pp. 59-77.

impact job satisfaction, coworker relations and supervisory treatment.

The Job Itself. It is in the area of the job itself that the individual may experience the greatest dissonance between his expectations and organizational reality (37:156). If the individual enters the organization with distorted or overly optimistic views of what the job has to offer he may experience initial disappointment and frustration. Additionally, disappointment may result from the assignment to a job that either does not allow the worker to use his talents and make decisions or is not a satisfying or worthwhile job (36:181). Thus, the intrinsic nature of the job, coupled with worker expectations, can lead to lowered job satisfaction.

The Immediate Supervisor. The immediate supervisor is probably the single most influential person that the new employee encounters. It is from the supervisor that the individual receives rewards, punishment, feedback, and help with new problems. However, the supervisor may be detrimental to the adaptation process if his expectations of the individual are too high, he is incompetent, or he is not adept in dealing with others. The organization through training or selection of the supervisor may minimize any detrimental effects of the supervisor on the socialization of the individual

(27:216; 36:184-5; 39:6). Thus, the supervisory treatment of workers becomes a major factor in the effective socialization of new employees. If female workers believe this treatment is discriminatory and/or based on stereotypical perceptions, the individual socialization of female workers will be impaired.

The Coworkers. The coworkers can provide the focal point for the individual to learn the values, norms, and expectations of the group and of the organization. Coworkers provide a source of social identity for the individual. Coworkers may have negative influence on socialization through the use of negative and/or biased feedback or other dysfunctional group processes (36:179; 45:224). If women workers perceive that male coworkers stereotypically view female workers as less competent, less logical, etc., this perception will have detrimental impacts on the socialization of those female workers.

Working Conditions and Environment. The working conditions and environment have significant impact on the adaptive efforts of the individual. Individuals who adapt readily will adjust and be able to work in poor working conditions or environments while others will adjust more slowly or not at all. Some conditions, such as flight line duty, may not be subject to change by the organization, but the effects can be minimized by providing

proper clothing, tools, instructions, and facilities (28:14). Once jobs are properly designed and adequate tools and equipment are provided for female workers, their job satisfaction will increase.

Justification

The United States Air Force considers people to be its most valuable resource. Air Force personnel plans have attempted to allow for the full potential of each individual (2:13). An ever growing number of these individuals will be women. Between 1975 and 1978, the Air Force estimates that more than 52,000 women will be recruited (43:12).

Developing the full potential of women assigned to Air Force craft skills requires information on potential problem areas. Evidence already collected indicates that women in Air Force craft skills may be experiencing difficulties in organizational socialization far in excess of those experienced by men. The literature further suggests that these difficulties may be related to role stereotyping (23; 26; 28).

The previous studies have been either limited to one Air Force base (26; 28) or to small sample sizes which were inappropriate for providing predictions of

Air Force-wide attitudes (23). Conversations with Captains Bob Gregory and Marcie Jordon, Motivation/Communication Branch, Directorate of Personnel Plans, Headquarters USAF revealed that ". . . any research done in this area would be welcomed as 'follow-up' on the limited study conducted earlier by this office (16; 23)." Dr. Charles Clauser, of the Human Resources Laboratory, indicated a definite need for research in this area. He stated that studies of the impact of role stereotypes on the overall adaptation and productivity of enlisted women in the Air Force craft skills will be the most significant research performed in this area (10). The Air Force needs to identify the potential scope of management problems in this area and to develop managerial plans and tools to deal with those problems before large numbers of women are placed into undesired and inappropriate career fields, training efforts are wasted, reenlistment rates drop, and mission effectiveness is impaired.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY[1]

This research effort is part of an ongoing research project that is examining various behavioral factors affecting enlisted women in USAF craft skills. Therefore, a number of methodology conventions established in previous research studies are used so that this study can contribute to the ongoing project. The study has been endorsed by the logistics community at the Air Staff level and was designed to meet the specifications of the Motivation/Communication Branch, Directorate of Personnel Plans (DPXHMM), so that the results can be correlated with previous and proposed studies conducted by that office.

Description of Universe, Population, and Sample

Universe

The universe consists of all women working in what have previously been identified as predominantly

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[1]The methodology was developed in this chapter with some reference to Captain Roger P. Lemke and Captain Greg S. Mann, "An Investigation of the Relationship Between Tenure and the Program Manager in Terms of Perceived Conflict and Role Ambiguity." Unpublished master's thesis. SLSR 14-76A. AFIT/SL Wright-Patterson AFB OH, 1976.

all-male skilled trades. This universe includes those military skill areas which involve tasks closely associated with the tasks performed in the civilian skilled trades identified in Table 1.

Population

The population consists of all USAF enlisted women currently assigned within the Continental United States in USAF specialty codes (AFSCs) listed in Table 2. These are the AFSCs which were opened to enlisted women beginning in January 1973.

Selection of Sample

The sample was designed to consist of a random stratified selection of enlisted women from each of the career fields noted in Table 2 which contained seventy-five or more enlisted women as of 1 December 1976. A listing was obtained from AFIT/DPM which indicated the number of women assigned in the career fields by AFSC and base within the CONUS. The AF Human Resource Laboratory at Randolph Air Force Base, Texas, was asked to generate a stratified random sample of seventy-five women for each of the AFSCs to be studied. This sample size was based upon the four factors for determining sample size defined by Emory. These factors consist of: (1) the desired interval estimate, (2) degree of confidence, (3) population variance, and (4) relative size

of the population (12:140). In accordance with the central limit theorem, however, these stratified samples should allow for a response from at least fifty individuals in each AFSC examined. This provides for a reasonable number of nonrespondees, missing data in individual variables, and responses that may be unusable for any other reason.

The purpose of the sample stratification by AFSC in this study was to acknowledge and investigate the effects of job related environmental factors on the results of the study. As indicated earlier, working conditions and environment have significant impact on the social adaptability of the individual (28:14). The environmental working conditions vary significantly among the AFSCs being investigated, not only in terms of tasks performed but in such areas as closeness of supervision, amount of physical effort required, and exposure in outdoor working areas.

Data Collection Instrument/Variables

A questionnaire was distributed by mail to each member of the sample. This distribution method was used to obtain the most representative sample from a widely dispersed population at the most reasonable cost in the shortest time frame. Strict confidentiality of the respondents' identities was maintained at all times.

In addition to the demographic data required to correlate the results with other studies, nine variables were designed into the instrument. To the extent possible, questions related to each of the variables were randomly ordered within the instrument. For the purposes of the proposal, however, the questions were segregated under headings indicating the variable being measured. This draft instrument is included in Appendix A.

Demographic Data

The information collected in this portion of the instrument is primarily intended for use in coordinating the results of the study with the results of previous and proposed studies. Data on other variables will, however, be examined in relation to the respondent's AFSC. This analysis should provide an indication of the effects of role stereotypes on the socialization process in relation to both the military service and the specific job environment.

Sexual Harassment

The sexual harassment questions measure perceptions of unwelcome and/or repeated overt propositions; "friendly" overtures such as unsolicited pats, squeezes and pinches; and unwelcomed and/or repeated exposure to

verbal, sexually-oriented comments and jokes (26:9). Questions were developed from an interview guide used in a previous study which identified sexual harassment as a significant problem for enlisted women assigned to USAF craft skills (26). Nine questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a potential range of scores from nine to sixty three. The higher the respondent's score, the greater the perceived sexual harassment.

Competency

The competency questions measure the perceptions of such attributes as being independent, objective, active, competitive, logical, skilled in business, worldly, adventurous, able to make decisions easily, self-confident, a leader, ambitious (5:66). Questions were developed from an interview guide used in a previous study which identified negative perceptions of competency as a significant problem for enlisted women assigned to USAF craft skills (26). Ten questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a potential range of scores from ten to seventy. The higher the respondent's score, the greater the perception of incompetency.

Job Satisfaction

The job satisfaction questions measure the perceived degree of worker adaptability to working conditions and environment. Further, job satisfaction questions measure the degree of dissonance between worker expectations and organizational reality (37:156). Questions were developed from a questionnaire used in a previous study which indicated job satisfaction was lower for women than for men working in USAF craft skills (23). Fourteen questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question will be summed, providing a potential range of scores from fourteen to ninety eight. The higher the respondent's score the greater the perceived degree of job satisfaction.

Role Definition/Prescription

Role definition/prescription questions measure the perceived degree to which concepts of the ideal coworker parallel the male and female sex-role stereotypes. Questions were developed following the methodology of the Broverman et al. study in which the characteristics used were identified as either masculine or feminine (5).

Indices RD_1 and RD_2 are developed as summations of the responses for the masculine and feminine characteristics, respectively. For index RD_1, a high score indicates the respondent concurs with Broverman's conclusions that

the characteristics of ambition, independence, competitiveness, self-confidence and logic are masculine role prescriptions. For index RD_2, a low score indicates the respondent concurs with Broverman's conclusions that characteristics of emotionalism, submission, tactfulness, gentleness, and conceit are feminine role prescriptions. The highest possible score for either index RD_1 or RD_2 is thirty five. A third index, RD_3, is generated from RD_1 and RD_2 to provide a measure of the extent to which the respondents concur with Broverman's findings that these characteristics defined appropriate sex-role prescriptions. RD_3 is calculated as:

$$RD_3 = RD_1 - RD_2.$$

A high score for RD_3 indicates agreement with Broverman's findings.

These same characteristics are evaluated by the respondents again in a separate section of the instrument to indicate their views of an ideal coworker's characteristics. A second set of indexes, RD_4, RD_5, RD_6, are calculated in a manner similar to the above, indicating the respondent's perceptions as to the desirability of the same characteristics in coworkers. RD_4 and RD_5 are summations of the masculine and feminine characteristics respectively. For index RD_4, a high score indicates the respondent concurs with Broverman's conclusions

that the masculine characteristics of ambition, independence, competitiveness, self-confidence and logic are indicative of ideal coworkers. For index RD_5 a low score indicates the respondent concurs with Broverman's conclusions that the feminine characteristics of emotionalism, submission, tactfulness, gentleness and conceit fail to typify the ideal coworker. The highest possible score for either index RD_4 or RD_5 is thirty five. The index RD_6 is generated from RD_4 and RD_5 to provide a measure of the extent to which the respondent concurs with Broverman's studies that the masculine characteristics define the ideal coworker. RD_6 is calculated as:

$$RD_6 = RD_4 - RD_5.$$

A high score for RD_6 indicates agreement with Broverman.

Finally, a single variable RD_7 is generated as the sum of RD_3 and RD_6 to indicate the extent to which enlisted women in the craft skills identify desired characteristics in coworkers with the characteristics they identify as stereotypically masculine. If a women respondent prefers masculine characteristics in coworkers, she is likely to experience conflict between her role as a woman and her role as a worker in the craft skills. The score for RD_7 can range from -60 to +60. The higher the score for RD_7, the greater the perceived role conflict experienced by the enlisted women.

Physical and Operational
Job Standards

Physical and operational job standards questions measure the perceived degree to which female capacities and limitations are related to the design of work environments and physical requirements of USAF craft skills. Questions were developed to measure perceptions of respondent difficulties in the area of physical limitations. Ten questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a potential range of scores from ten to seventy. The higher the respondent's scores, the greater the degree of perceived difficulty in performing the work.

Overprotectiveness

The overprotectiveness questions measure the degree to which women perceive they get preferential treatment for dirty, heavy, physical labor and/or dangerous work. Questions were developed from an interview guide used in a previous study which identified overprotectiveness as a significant problem for enlisted women assigned to USAF craft skills (26). Eleven questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a potential range of scores from eleven to seventy seven. The higher the

respondent's score the greater the degree of perceived overprotectiveness.

Supervisory Treatment

The supervisory treatment questions measure the perceptions of the equitable distribution of rewards, punishment, feedback and help with problems by individual supervisors to each respondent (26:1). Questions were developed from a questionnaire used in a previous study which indicated that supervisory treatment was inequitably applied to enlisted women working in USAF craft skills. Nine questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a potential range of scores from nine to sixty three. The higher the respondent's score, the greater the degree of unequal distribution. Other questions were included as an internal validity check on the overall scale.

Coworker Relations

The coworker relations questions measure the degree of male worker resistance to socialization perceived by women through usage of negative and/or biased feedback or other dysfunctional group processes (36:179). Questions were developed from a questionnaire used in a previous study which indicated that positive coworker relations were lower for women working in USAF craft

skills (23). Twelve questions were developed to be answered on a rating scale of one to seven. Response scores for each individual question are summed, providing a range of scores from twelve to eighty four. The higher the respondent's score, the greater the indication of perceived negative socialization.

Fear of Success

The fear of success questions measure the perceived reactions to male and female success and failure for an occupation depending upon the perceived appropriateness of the occupation for the sex concerned. Success is evaluated more positively if it is consistent with societal conceptions about the sex role than if it is inconsistent, while failure is evaluated more negatively if it is inconsistent with societal conceptions about the sex role than if it is consistent (13:546). A series of questions was developed in two areas following the methodology pioneered by Feather in his article, "Positive and Negative Reactions to Male and Female Success and Failure in Relation to the Perceived Status and Sex-Typed Appropriateness of Occupations" (13). The first series of questions measures the positive valence of success in the career area, while the second series of questions measures the negative valence of failure in that career area. These two question

sets are separated in the instrument to reduce the possibility of interquestion bias affecting the responses. The individual questions require the respondent to compare the relative degree of happiness or unhappiness with success or failure respectively for male and female competitors in specific situations related to the military work environment (see questions under "Fear of Success" in Appendix A). Responses are scaled and combined to provide a single measure of fear of success.

Ratings of happiness about success and unhappiness about failure "may be taken as indicators of the strength of the *positive valence of success* and the *negative valence of failure*, respectively [13:546]." Questions were developed to measure the positive valence of success, and these are scored on a scale of one to fourteen. The individual's responses for these questions are summed and that sum is subtracted from fifty six, the maximum possible score for these questions, to obtain a measure of the negative valence of success. Questions were developed to measure the negative valence of failure, and these are scored on a scale of one to fourteen. The individual's responses for these questions are summed and the sum is subtracted from fifty six, the maximum possible score for these questions, to obtain a measure of the positive valence of failure. Finally, the scores for the negative valence of success

and the positive valence of failure are summed to provide a single measure for the fear of success. This measure is then used in the correlation analysis examining the relationships between role stereotypes and the factors of job socialization.

The higher the score the greater the extent to which women perceive success as undesirable for females in USAF craft skills. If a female respondent fears success, she is likely to experience conflict between her role as a women and her role as a productive worker.

Development of Interval Scales

With the exception of the demographic data, the scales constructed in this instrument solicit data that are interval in nature; that is, a common and constant unit of measurement is used which assigns a real number to objects in an ordered set and employs an arbitrary zero point. However, the zero point does not represent the complete absence of the attribute under consideration. Cardinality in scaling is assumed on the basis that equally-appearing intervals are equal (19:70-76).

A common error that occurs when analyzing interval level data is for a researcher to lose sight of the limitations resulting from not being able to define an absolute zero point. The attractive real number

representation of data may invite analysis using techniques only applicable to higher level data. Hays cautions that ". . . the road from objects to numbers may be easy, but the return trip from numbers to properties of objects is not [18:76]." The reader is cautioned against applying statistical methods meant for ratio level data to data collected with this instrument (25:43).

Question Development

The questions developed by the research were pretested and evaluated by four members of the faculty of the Graduate Education Division, School of Systems and Logistics. A pilot test of the instrument using local women volunteers as a data-producing sample, was also conducted prior to the analysis of the data returned by the enlisted women.

Instrument Reliability

"Reliability is an indication of the extent to which a measure contains variable error [21:280]." As Helmstadter points out, questionnaire length tends to influence reliability. The more questions asked about an attribute the closer a questionnaire can come to measuring the true amount of that attribute possessed by a respondent (21:289). The number of questions per variable in this instrument ranges from eight to fourteen,

and these must be considered in evaluating the test-retest reliability of the instrument (21:296). Variable error is defined in terms of random fluctuations in performance which lead a person to get a different score from one testing session to another (21:283). Ideally, test-retest reliability for the data collection questionnaire would be determined by distributing the questionnaire twice to a pilot study group of at least thirty women assigned to Air Force craft skills. Time interval between distributions should be at least six weeks. Using a Pearson product-moment correlation analysis (reference Statistical Test Section) to compare test-retest responses, a reliability coefficient ($r_{xx'}$) would be determined for each variable measured. Helmstadter cautions that when evaluating measurements of reliability the content of the test and the test measurement method should be considered. Questionnaires designed to solicit feelings and attitudes tend to produce low reliability measures because of the fluctuating nature of attitudes and feelings. Additionally, the test-retest reliability measurement method tends to provide a conservative estimate of reliability, provided the time period between test and retest is adequate to minimize spurious responses due to original recall (21:283,284,294). Unfortunately, clearance for the instrument was not

obtained in time to conduct this test. It is hoped that test-retest reliability of the instrument can be determined at a later date by identifying a small sample of enlisted Air Force women in the craft skills who will be willing to reaccomplish the survey.

Instrument Validity

In discussing validity, Emory states that "The . . . validity of a research design is its ability to measure what it aims to measure [12:120]." The questions measuring all but one of the variables investigated by this study are based upon previous research. Therefore, a certain amount of face validity can be attributed to the questionnaire.

The extensive evaluation of the instrument by faculty members of the Functional Management Department and Research and Administrative Management Department, Graduate Education Division, School of Systems and Logistics, lends a logical validity to the questions. Logical validity results from extensive subjective evaluation of an instrument by experts to determine if the questions and number of questions are adequate to measure a trait (21:298).

Statistical Test

The raw data was received from the respondents on standard mark-sense scanner answer sheets. Responses were read into a data file using available equipment in the computer support section, School of Systems and Logistics. Descriptive statistics were generated from this file using standard Statistical Package for the Social Sciences (SPSS) computer programs, and was examined for central tendency and variance to determine that the use of parametric statistics was appropriate. Specifically, the data were examined to determine if there were any observable reason that the assumption of normality would not be appropriate. As shown in Chapter IV, the data passed this initial examination and parametric statistics can be appropriately applied for analysis.

To investigate the research proposition, Pearson product-moment correlation coefficients were developed to examine the statistical relationships between the role stereotypes and the factors of socialization measured by this study. The correlations to be anticipated by the research propositions are indicated in matrix form in Table 4. The interval measurements on one variable were related with the interval measurements of another. A value of the Pearson product-moment correlation coefficient (Pearson r) may vary between +1.00 and -1.00. Both of these extremes represent

TABLE 4

ANTICIPATED PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES

Stereotypes	Job Satisfaction	Coworker Relations	Supervisory Treatment
Sexual Harassment	-*	+	+
Overprotectiveness	-	+	+
Competency	-	+	+
Fear of Success	-	+	+
Role Prescription/ Definition	-	+	+
Physical & Operational Job Standards	-	+	+

NOTE: This correlation matrix will be developed for the data as a whole and for the data obtained from each AFSC. A comparison of the individual AFSC results should allow a determination of whether or not there are job-unique characteristics which influence the results.

*"-,+" indicates direction of expected correlation.

perfect linear relationships between the variables; 0.00 represents the absence of a linear relationship (19:499).

The computational formula for determining r_{xy} in terms of raw scores is:

$$r_{xy} = \frac{n\Sigma xy-(\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2-(\Sigma x)^2][n\Sigma y^2-(\Sigma y)^2]}}$$

Where: x and y are variable observation values

n is the sampe size

A positive Pearson r means that respondents obtaining high scores on one variable tend to obtain high scores on a second variable. The converse is also true, i.e., respondents scoring low on one variable tend to score low on a second variable. A negative Pearson r means that responents scoring low on one variable tend to score high on a second variable. Conversely, respondents scoring high on one variable tend to score low on a second variable (19:499).

The Pearson r is generally used as a parametric measure of the degree of relationship between variables (12:402). However, there is disagreement among researchers on the selection of correlation coefficients for various levels of data and the assumptions in psychological research regarding the bivariate normal distribution on the

joint events (X,Y). Hays, in discussing the appropriateness of Pearson correlations for sample data, states that:

> . . . It is not necessary to make any assumptions at all about the form of the distribution, the variability of Y scores within X columns of "arrays," or the true level of measurement represented by the scores in order to employ linear regression and correlation indices to describe a given set of data. So long as there are N distinct cases, each having two numerical scores, X and Y, then the descriptive statistics of correlation and regression may be used. In so doing, we describe the data as though a linear rule were to be used for prediction, and this is a perfectly adequate way to talk about the tendency for *these* numerical scores to associate or "go together" in a linear way *in these data*.
>
> The confusion has arisen because in inference about true linear relationships in populations, and in some applications of regression equations to predictions beyond the sample, assumptions do become necessary . . . However, one may apply correlation techniques to any set of paired-score data, and the results are valid descriptions of two things: the particular linear rule that best applies, and the goodness of the linear prediction rule as a summarization of the tendency of Y scores to differ systematically with differences in X *in these data* [emphasis Hayes] [19:510].

In order to make inferences to the population, the assumption of a normal distribution must be made (19:528). For large samples (n>30) the assumption of a normal disbribution is reasonable in accordance with normal usage of the central limit theorem (19:530). The main interest actually is in the value of r_{xy} itself, the estimator of the population correlation coefficient. After making the assumption about the population distribution of joint (X,Y) events, the significance of the linear relationships between the stereotypes and factors of socialization, and also the direction

(positive and negative) of the relationships, was evaluated (19:527).

All of these variables are completely free to take on any value for any observed individual. Each individual of the sample represents the occurrence of a joint X, Y, and Z event. The research proposition, stated at the end of Chapter I, concerns the relation between the variables, taking two variables at a time. A (SPSS) computer package was used to perform the calculations for the Pearson product-moment correlation analysis. A .05 level of significance is widely used in behavioral science research. Each of the relationships will be tested against this standard.

In addition to the statistical analysis generated by the Pearson product-moment correlations, the data were analyzed using the technique of canonical correlation. This analysis examined the relationship between the grouped perceptions of role stereotype variables and the grouped perceptions of job socialization factors.

> Canonical correlation analysis takes as its basic input two set of variables, each of which can be given theoretical meaning as a set. The basic strategy of canonical correlation analysis is to derive a linear combination from each of the sets of variables in such a way that the correlation between the two linear combinations is maximized [34:517].

It is beyond the scope of this study to detail the quantitative underpinnings of the canonical correlation technique. The reader is referred to the work of Tatsuoka for the quantitative aspects (42) and to Alpert and Peterson (1) for the interpretation of results. In particular, this reserach will use the methodology of Alpert and Peterson to interpret the results of the canonical analysis.

As indicated above, it is incumbent on the researcher to demonstrate a theoretical meaning for each set of variables prior to instituting the canonical analysis. The several measures of role stereotypes used in this study actually measure the respondent's perceptions of behavior in the work environment.

The perceived behaviors are based upon sets of beliefs about the characteristics of different occupations and the normative expectations regarding appropriate male/female behavior (13:563). "Research demonstrates the contemporary existence of clearly defined role stereotypes for men and women [5:75]." A review of the literature indicates that role stereotypes affect women workers in the following areas: (1) assessment of competence (39:248; 5:75), (2) fear of success (9:176; 5:76; 13:587), (3) license for sexual harassment (4:11), (4) overprotectiveness (31:207-216), (5) lack of physical and operational job standards (3:3; 11:14), and (6) role

definition/prescription (5:75; 13:536-548). Each of these can be viewed as a subset of the overall role stereotyping. Thus, it would appear they can logically be grouped to provide a more complete view of the impact of the stereotypes on women in the work environment.

The several measures of job socialization factors, like role stereotypes, actually measure the respondent's perceptions of behavior in the work environment.

The perceived behaviors are localized in those processes necessary to learning the roles and actions appropriate to the work environment. Included in this process are the ways individuals learn the culture and values of their new job settings, the adjustment to the work environment and the development of work skills (14:434). A review of the literature indicates that job socialization factors include: (1) job satisfaction (37:156; 36:181; 28:14), (2) coworker relations (36:179; 45:224), and (3) supervisory treatment and/or acceptance (27:216; 36:184-5; 39:6). Each of these factors can be considered as a subset of the job socialization process. Thus, it would appear they can logically be grouped to provide a more complete view of the impact of job socialization on women in the work environment.

Typically, canonical correlation is used:

1. To determine vectors of weights for each set of variables such that linear combinations of the respective variables are maximally correlated. This

goal implies optimal prediction of linear combinations of variables (variates) from one vector, given variable values in the other vector.

2. To determine whether two sets of variables are statistically independent of one another in a linear sense, or conversely, to determine the magnitude of the relationships between the two sets.

3. To explain the nature of any relationships between the sets of variables, generally by measuring the relative contribution of each variable to the canonical relationships obtained [1:187].

For the purposes of this study, only the first two of these objectives are paramount. The basic purpose of this analysis is to determine if the perceptions of stereotyped attitudes are associated with the perceptions of behavior in the work environment; and to determine the potential magnitude of this relationship. Further, it would be appropriate to develop a means of predicting the relationship between stereotypic attitudes and behavior in the work place. It was anticipated, however, that the specific contribution of each variable in explaining the overall relationships between the attitudinal and behavioral perceptions could vary widely from respondent to respondent. It was therefore of minor value to this research to attempt detailing the contribution of each variable to any relationships obtained.

The mathematical formulation of the canonical correlation problem is indicated below. The basic requirement is to determine one set of weights

$$\mu' = [\mu_1, \mu_2, \ldots, \mu_p]$$

for the predictor variables, and a second set of weights

$$v' = [v_1, v_2, \ldots v_q]$$

for the criterion variables such that the largest achievable correlation r_2w is obtained between

$$Z = u_1x_1 + u_2x_2 + \ldots + u_px_p$$

and

$$W = v_1y_1 + v_2y_2 + \ldots + v_qy_q$$

for the data collected (42:178).

It was anticipated that these two sets of variables would be positively correlated at better than the .05 level of significance. The (SPSS) computer package, using subprogram CANCOR was used to perform the calculations for the canonical correlation analysis.

Criteria Test

In addition to the statistical tests, the results obtained for each variable in this study were compared to the results obtained in the studies on which the specific variable is based. The research proposition indicates that the significant problems associated with role stereotypes identified in the civilian literature also exist for military women entering male dominated career fields. Failure to achieve similar results for the individual variables measured would require that

the researchers seriously question the ability of the data to support the research proposition, regardless of the statistical results.

Assumptions

The assumptions under which this research was conducted are as follows:

1. Selected sample is representative of the population under study.

2. Definitions and assumptions from supportive research studies are valid and reasonable.

3. Uncontrolled variables that exist in the craft skills are consistently distinctive to specific AFSCs studied.

4. The full cooperation of the randomly selected sample will result in the return of unbiased data.

Limitations

1. While there are indications of a need to develop physical and operational job standards for enlisted women assigned to Air Force craft skills (11), this research will not attempt to identify or define those standards. Clearly, however, any relationship between physical capability, role stereotypes, and the factors of socialization must be considered and examined in this study. Thus, this study will deal only with

perceptions of problems in the area of physical limitations and equipment deficiencies.

2. Only limited validity testing of the instrument will be feasible prior to collecting data for this study.

3. Finally, this research effort is limited to an analysis of representative, random samples relating to the twelve Air Force craft skills previously identified. Any conclusions rendered will be directly applicable only to those twelve Air Force craft skills. The results should not be generalized to the Air Force as a whole unless its reader has reason to believe that other enlisted women are reasonably well represented by this sample.

Summary of Operational Definitions

The operational definitions are developed throughout the text of the study. They are collected and summarized here for convenience of the reader.

Stereotype. A stereotype, for this study, is defined as a picture one has in mind when visualizing a "hypothetical" type of person. It exists in the "eye of the beholder" and may not be an accurate perception of reality. Stereotypes are individualized perceptions of what personality traits exist in others, as opposed to what traits really exist (29:239).

Sexual Harassment. Sexual harassment can be defined as perceptions of unwelcomed and/or repeated overt propositions; "friendly" overtures such as unsolicited pats, squeezes and pinches; and unwelcomed and/or repeated exposure to verbal, sexually-oriented comments and jokes (26:9).

Competency. Competency, for this study, is a measure of the perception of such attributes as being independent, objective, active, competitive, logical, skilled in business, worldly, adventurous, able to make decisions easily, self-confident, always acting as a leader, ambitious (5:66).

Job Satisfaction. Job satisfaction can be defined as a measure of the perceived degree of worker adaptability to working conditions and environment. Further, job satisfaction measures the perceived degreed of dissonance between worker expectations and organizational reality (37:156).

Role Definition/Prescription. Role definition/prescription for this study is defined as the measure of the perceived degree to which concepts of the ideal coworker parallels the male and female sex-role stereotypes (5:68).

Fear of Success. Fear of success for this study is defined as the extent to which success is perceived to be appropriate based on factors of sex and occupation.

> Success at an occupation is viewed more positively if this success is consistent with societal conceptions about the sex role than if it is inconsistent [13:537].

Physical and Operational Job Standards. Physical and operational job standards are defined as a measure of the perceived degree to which female capacities and limitations are related to the design of work environments and physical requirements of USAF craft skills.

Overprotectiveness. Overprotectiveness for women can be defined as perceived preferential treatment for women involved in dirty, heavy, physical labor and/or dangerous work.

Supervisory Treatment. For this study supervisory treatment includes rewards, punishment, feedback, and help with new problems (26:1).

Coworker Relations. Coworker relations is defined as the focal point for the individual to learn the values, norms, and expectations of the group and of the organization (36:179).

CHAPTER IV

ANALYSIS AND DISCUSSION OF THE DATA

Survey Approval and Data Collection

In attempting to carry out the research design described in Chapter III, several problems were encountered which resulted in modifying both the survey instrument and the planned sample. These problems and the resolution to them are described below. Although portions of the study design were changed, these changes did not significantly reduce the validity of the findings.

The original questionnaire contained one hundred and eighteen questions measuring nine separate variables (see Appendix A). A revised questionnaire which measured eight variables was used because responsible officials felt that specific questions dealing with sexual matters were inappropriate for an Air Force survey and would not provide additional significant information in this area. The final instrument distributed to the respondees is presented in Appendix B.

The original sampling plan had been designed using a stratified random sample of seventy-five women in each of eight career fields. As part of the Air Force

survey approval process, the Air Force Human Resources Laboratory, Randolph Air Force Base, Texas, was to generate the samples and provide the necessary computer-generated mailing labels. When these materials were received, however, it was found that the Laboratory had not provided random samples, but instead had provided a census of all enlisted women in these career fields. The women were not identified by AFSC, so it was not possible locally to generate the random stratified samples. Time was not available in which to have the Human Resources Laboratory correct their oversight. When notified of this situation, the Air Force Military Personnel Center (AFMPC/DPMYPS) and Headquarters Air University (AU/EDG) both verbally approved using the entire census of women in these career fields. The overall impact on the study of receiving census data from the Human Resources Laboratory was to dramatically increase the number of responses analyzed and thus markedly increase the validity of the findings. After eliminating those women in technical schools on the grounds that they had not been in the work environment and would therefore not be expected to have first-hand knowledge of the situations being investigated, the final survey consisted of 3,620 enlisted women. One-thousand-seven-hundred-thirty-six responses were returned for a response rate of 50.76 percent (see Table 5). However, mechanical

TABLE 5

SIZE OF DATA SOURCE

Number of names provided by Human Resources Laboratory	4,740
Number of names eliminated because individuals were in school and had no experience in the field	-1,120
Instruments returned because individuals had transferred/been discharged	- 200
Basic population for the study	3,420
Number of respondees	1,736
Number of instruments destroyed by scan-reader equipment	- 6
Number of instruments used in the analysis	1,730

$$\text{Response Rate} = \frac{1,736}{3,420} = 50.76\%$$

problems with the scan-answer reading device destroyed six answer sheets leaving a total of 1,730 to be analyzed. An additional 200 surveys were returned indicating that the enlisted women had either transferred from the assignment or been discharged. This number represents only those individuals for whom the researchers received written notification of discharge or transfer. It is unknown how many others have been transferred or discharged, therefore, no additional corrections for this factor were made to the data base. In addition, leaves and/or temporary duty assignments may have reduced the response rate.

As indicated earlier, questions were developed to employ the methodology used in previous studies. The questions measuring fear of success used the instructions for Feather's study (13). However, these instructions were apparently originally designed to be given verbally with opportunities for respondent questions. There were no opportunities for explanations in the survey, however. Many written comments were received indicating that the respondees had difficulty interpreting the instructions and providing meaningful responses to the questions (see Appendix D for representative examples of these comments). It is expected, therefore, that the results generated from these questions may be less than valid and may have to be interpreted with care.

Finally, although the instructions for role definition/prescription seemed to be well understood by respondents, many individuals indicated they had difficulty answering the questions. Written comments indicated many women believe the traits measured are characteristic of both men and women (see Appendix D for representative examples of these comments). The results generated from measuring this variable must, therefore, also be interpreted with care.

Analysis of the Individual Variables

The civilian literature clearly indicates that role perceived stereotypes do exist for women entering previously all-male career fields and that the women's, the coworker's, and the supervisor's perceptions of these stereotypes negatively affect the manner in which women are socialized to the work environment. The initial effort in analyzing the data collected involved examining the descriptive statistics for each variables and conducting a Pearson Product-Moment Correlation analysis to determine if the data supports the civilian literature findings on an individual, variable by variable, basis.

Review of Descriptive Statistics

Descriptive statistics, in particular the means and standard deviations for the eight major variables,

were generated using SPSS computer programs. This data is shown in Table 6. An examination of this data indicates that a central tendency apparently exists for each variable, and there is no apparent reason that the assumption of normality would not be appropriate. Therefore, parametric statistics can be appropriately applied in the analysis. Further, the sample sizes are sufficiently large to apply the Central Limit Theorem and assume a distribution reasonably close to the normal (19:530).

Several respondents coded the scan-answer sheets as a male. The responses were included in the data on the assumption that the coding was in error. This assumption is based on the knowledge that the sample was generated from the official Air Force personnel files of enlisted women.

Simple Pearson Product-Moment Correlation Analysis

The results of the simple Pearson Product-Moment Correlations are presented in Table 7, in which the expected results are compared with those actually obtained from the data. The individual pairwise associations largely reflect the results anticipated, except for those involving fear of success and role definition/prescription. These two variables are those which the respondents reported having difficulty understanding. The amount

TABLE 6

DESCRIPTIVE STATISTICS

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	1,687	9→63	26.4606	10.8300
Physical and Operational Job Standards (POJS)	1,709	10→70	31.4166	13.3579
Job Satisfaction (JS)	1,702	14→98	55.8937	14.9826
Competency (COMP)	1,702	10→70	35.1698	10.7866
Overprotection (OPRO)	1,706	11→77	31.4947	9.7194
Coworker Relations (CORE)	1,704	12→84	42.0352	10.8566
Fear of Success (FS_5)	1,576	0→104	63.7367	18.9883
Role Definition/Prescription (RD_7)	1,668	-60→+60	12.4916	7.8112

TABLE 7

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES*

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.2930 (.001)§	+	.3201 (.001)	+	.4142 (.001)
Competency	-	-.4933 (.001)	+	.3508 (.001)	+	.4128 (.001)
Physical & Operational Job Standards	-	-.4519 (.001)	+	.2699 (.001)	+	.3282 (.001)
Fear of Success	-	.1624 (.001)	+	-.0725 (.002)	+	-.0792 (.001)
Role Definition/ Prescription	-	.0509 (.019)	+	-.0677 (.003)	+	-.0908 (.001)

*N $\geq$ 1538 for all correlations. The actual N varies from 1538 to 1709 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

of variance explained by these two variables in their correlations with the socialization factors is not large but it is significant due to the large number of cases N. The failure of these two variables to support the predicted relationships may be due to any one or a combination of three possible reasons:

1. Difficulty might be experienced in understanding/completing the data collection instrument.

2. The application of the civilian findings to this study may be incorrect/incomplete.

3. The respondents may be rejecting the conclusions drawn in the civilian literature.

Difficulty was in fact, experienced with the instrument relative to the variable fear of success. Some respondents indicated confusion over the instrument, specifically whether or not one or two responses were desired (one representing their view for males and one representing their views for females) (see Appendix D for other representative comments).

> Ref questions 15-18 and 115-118: [fear of success questions]. Firstly, the instructions are confusing; . . . I didn't understand how to arrive at an answer for these questions . . .

The findings of Broverman et al., and Feather for the variables role definition/prescription and fear of success, respectively were generated based on a comparison of the responses from both male and female subjects.

The original intent of this study was to obtain responses from both the women in the craft career fields and their male coworkers. As the study progressed, it was recognized that this plan was infeasible due to an inability to identify male coworkers with each specific female worker while maintaining even reasonable levels of anonymity. Adjustments were made in the question scaling to counteract this shortcoming. However, the basic fact remains that there is no male control group against which to compare the women's responses. It may be inappropriate, therefore, to expect the results of this study to duplicate those of Broverman et al., and Feather. Rather, the results must be interpreted relative only to the questions themselves and the scoring method used to evaluate those results.

Information does, in fact, exist to indicate that some Air Force women may be actively rejecting the role stereotypes on which the studies of Broverman et al., and Feather were based. Many respondents indicated that fear of success and role definition/prescription could not be identified on a sex-role basis, but rather were highly individualized characteristics. For example:

> . . . As for denoting a gender to characteristics, in questions nineteen through twenty-eight--absurd! . . . One cannot associate a characteristic as being

> either masculine or feminine, any more than one can say laziness is a Puerto Rican characteristic, while industriousness is an Anglo Saxon characteristic . . .

(See Appendix D for other representative comments.)

In summary, all three of the possible explanations identified apparently combined to produce results different from those predicted. There is no clear justification, however, for eliminating this data from the analysis since the large majority of respondents apparently interpreted the instructions successfully and expressed their views in their responses. Further, the amount of variation explained by these variables in their correlations with the job socialization factors is quite low relative to the other stereotype variables and should, therefore, have a relatively small effect on the final results. Futher researchers using this instrument, however, would be best advised to orient the study toward a comparison of male and female responses so that the information collected relative to these two variables can be more clearly interpreted.

The remaining correlation coefficients in Table 7 clearly support the associations predicted. All demonstrate the predicted direction of correlation, all clearly surpass the preestablished level of significance decision rule, and all demonstrate relatively high levels of variation explained. The amount of variation

explained, in particular, is quite high relative to most behavioral studies of this nature. In general, then, after considering the amount of variation explained by each correlation, the data as a whole support the type of relationships predicted. The high levels of statistical significance reported for these relationships lends additional credence to these findings, although it must be noted that with such large numbers of cases (N), little variation explained is required to achieve high significance levels.

Difficulty was experienced in measuring two of the role stereotypes. For the remaining variables, however, highly significant correlations were found among the role stereotypes and among the factors of job socialization. These findings parallel those of the civilian literature, confirming that those Air Force enlisted women in the surveyed career fields who experience similar perceptions of role stereotypes also experience similar negative perceptions of the effects on job socialization. To this extent, the research proposition is clearly supported.

Analysis of the Combined Variable Sets

The civilian literature, however, has typically dealt with the measurement of only one role stereotype at a time. The present study attempts to extend the

literature to the military environment and also combine the several role stereotype measures and the job socialization measures into variate sets in order to investigate an overall relationship between perceptions of job socialization and perceptions of role stereotypes.

Canonical Correlation Analysis for the Total Data

The appropriate methodology for analyzing the relationships between sets of variables is canonical correlation. This technique assumes that the researchers have independently established a theoretical meaning for both the predictor and criterion sets of variables as sets. A theoretical justification for grouping the stereotype variables as a criterion set and the socialization factors as a predictor set was discussed earlier in this study (see pages 49-50). The Pearson Product-Moment intercorrelation matrices for these sets of variables can be used to confirm a numerical association among the variables in these sets.

The intercorrelation matrix for the criterion set (stereotype variables) is presented in Table 8. It is apparent that the variables physical and operational job standards, competency, and overprotection have a high level of association among themselves. The high significance of the relationships reinforces this statement. While the associations are high, it would appear

TABLE 8

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)*

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.5991 (.001)†	.4336 (.001)	-.1018 (.001)	.0259 (.146)
Competency	. . . .	1.---	.4415 (.001)	-.1792 (.001)	.0410 (.048)
Overprotection	. . . .	. . . .	1.---	-.0456 (.036)	.0022 (.048)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0346 (.088)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 1538 for all correlations. The actual N varies from 1538 to 1709 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

that sufficient unexplained variance remains among these variables to avoid any potential difficulty that might arise in the canonical correlation analysis should one variable be a linear function of any other variable. Multicollinearity apparently exists and must be considered in the canonical correlation analysis. The variables fear of success and role definition/prescription, however, show much lower associations both between themselves and with the other stereotypes. The possible causes of this situation were discussed in the previous section.

The intercorrelation matrix for the predictor set (socialization factors) is presented in Table 9. It is apparent that the variables supervisory treatment, job satisfaction, and coworker relations have a high level of association among themselves. The high significance of the relationships reinforces this statement. The directions of correlations are as expected with the coding scheme used. While the associations are high, it would appear that sufficient unexplained variance remains among these variables to avoid any potential difficulty that might arise in the canonical correlation analysis should one variable be a linear function of any other variable. Multicollinearity apparently exists and must be considered in the canonical correlation analysis.

TABLE 9

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)*

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3981 (.001)†	1.----	. . . .
Coworker Relations	.4801 (.001)	-.3187 (.001)	1.----

*N $\geq$ 1538 for all correlations. The actual N varies from 1538 to 1709 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

The results of the canonical correlation analysis are presented in Tables 10 and 11. The analysis of these relationships is conducted using the methodology and suggestions of Alpert and Peterson from their article "On the Interpretation of Canonical Analysis" (1). The canonical analysis was used to determine whether any relationships existed between these data sets and if so, the nature of the relationships. Only two canonical variate set correlations were found in this total data file, and these were both significant beyond the .001 level (see Table 10). The high value of canonical R and the statistical significance clearly indicate that a relationship does exist between these two variable sets, i.e., that the coefficients are significantly different from zero. By definition, however, the canonical correlations are maximal linear relationships between the sets and are therefore overstated. Further, multicollinearity which exists among the variables of both the predictor and criterion sets would also tend to produce an overstated relationship. The common (simplistic) approach to assessing the strength of the relationships between these two variable sets is to use the squared canonical Rs as estimates of the shared variance between linear combinations of the variables in each set. Three problems arise immediately. The first involves how to deal with the c (c>1, in this case c=2) canonical correlations.

TABLE 10

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES: RELATIONSHIPS BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.6225	.3875	833.961	15	.000
2	.2277	.0519	82.331	8	.000

TABLE 11

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE STEREOTYPES AND SOCIALIZATION FACTORS

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients	
	Canonical Variate Set 1	Canonical Variate Set 2
Predictor Set		
Supervisory Treatment	.4176	.7935
Job Satisfaction	-.6087	.9150
Coworker Relations	.2446	.2560
Criterion Set		
Physical & Operational Job Standards	.2784	-.6923
Competency	.5863	-.1327
Overprotection	.3065	.9957
Fear of Success	-.0990	.2408
Role Definition/ Prescription	-.1727	-.1585

The second involves the fact that the total variance that exists in each set of variables is likely to be different from that existing in the other set. The third involves how to deal with the multicollinearity likely to be found in data of this type if the results are to be used for other than prediction purposes.

To rectify the inherent overstatement in the usual measures of canonical associations, Alpert and Peterson describe the development of a measure termed "redundancy" (1). This measure specifically assesses the *average* relationship between the two *sets* of variables.

> Redundancy, expressed as a percentage of the total variation in each set, is rarely symmetrical in the sense that the percentages are the same for both variable sets, because the total variances and the number of variables in each set will differ . . . [1:188].

The formula for expressing redundancy is indicated below:

$$\bar{R}^2_{c/p} = \sum_{i=1}^{m_c} \lambda_i vc_i = \sum_{i=1}^{m_c} \lambda_i \left(\sum_{j=1}^{m} \frac{L_{ji}^2}{M} \right)$$

where: vc_i = Proportion of criteria set variance extracted by ith factor (or variate)

vp_i = Proportion of predictor set variance extracted by the ith factor (vp_i would

be used in place of vc_i to calculate $\bar{R}^2_{c/p}$)

λ_i = Squared ith canonical correlation coefficient, or the proportion of the variance of one of the ith pair of canonical variates predicted from the other member of the pair.

m_c = The number of pairs of variates.

L_{ij} = The correlation (loading) between the jth variable and the ith canonical variate (for the criterion set) (1).

$\bar{R}^2_{c/p}$ is essentially the equivalent of calculating the squared multiple correlation coefficient between the total predictor set and each variable in the criterion set summing these squared coefficients, and then averaging them to arrive at an average R^2 (1). This was the method used to obtain the values of R^2 presented in Table 11. $\bar{R}^2_{c/p}$ essentially expresses the common variance between the two sets of variables as a proportion of the criterion set. The analogous calculations using vp_i determine the same shared variance $\bar{R}^2_{c/p}$ expressed as a percentage of the predictor set. Alpert and Peterson indicate that while the canonical correlation coefficients are appropriate for determining the existence of relationships between sets of variables, redundancy seems

more appropriate for interpreting the overall magnitude of the relationships that exist (1).

The values of the redundancy calculations are presented in Table 12. Note that the total variance explained (R^2) calculated from the canonical correlations would indicate that a large percentage of the variance in the perception of the socialization factors could be explained by the perception of stereotypes. For example, this simplistic approach would indicate that nearly 39 percent of the common variance would be accounted for by the first canonical relationship alone. The redundancy calculations present a more realistic view. The redundancy in the predictor set given the criterion set indicates that the redundancy is 24.37 percent. This same redundancy is 16.57 percent of the variance in the criterion set given the predictor set. These redundancies indicate a high level of shared variance, even though they are lower than the shared variance estimate obtained by correlating optimal linear combinations. Relationships clearly exist between the perceptions of socialization factors and the perception of role stereotypes in the data analysis. The amount of redundancy explained clearly indicates that, while the importance of these relationships may have been overstated by both the bivariate and the canonical correlation analysis, sufficient variation is explained

TABLE 12

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION EXPLAINED BY TWO CANONICAL VARIATE SETS

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
		Predictor Set (Socialization Factors)			
1	.6225	.3875	.5792	.2244	92.10
2	.2277	.0519	.3711	.0193	7.90
				Σ=.2437	Σ=100.00
		Criterion Set (Stereotype Variables)			
1	.6225	.3875	.3852	.1493	90.00
2	.2277	.0519	.3202	.0166	10.00
				Σ=.1659	Σ=100.00

to make this relationship quite important. That is, given the large N in this analysis and the exploratory behavioral nature of this study, approximately 20 percent of the redundancy explained would seem to be an important finding. It is also apparent from the redundancy calculations that the first canonical variate set is by far the most important of the two in explaining the associations between the predictor and criterion variable sets, since it accounts for about 90 percent of the redundancy explained.

Tables 13 and 14 present three measures of the contribution each variable makes to the canonical relationships. The first measure is the standardized form of the canonical coefficient of the variables used to develop each respondent's canonical scores. The second measure is the Pearson Product-Moment correlation between individual variables and the respective canonical variates [corresponding to loading (L) in factor analysis] (see Table 15). The third measure is the variable/variate correlation squared and expressed as a percentage of the sum of squared correlations for each variate (1:190).

A careful review of the changes that occur in the rank order of importance among the variables across these three measures demonstrates that a difficulty exists in attempting to designate variables as "highly

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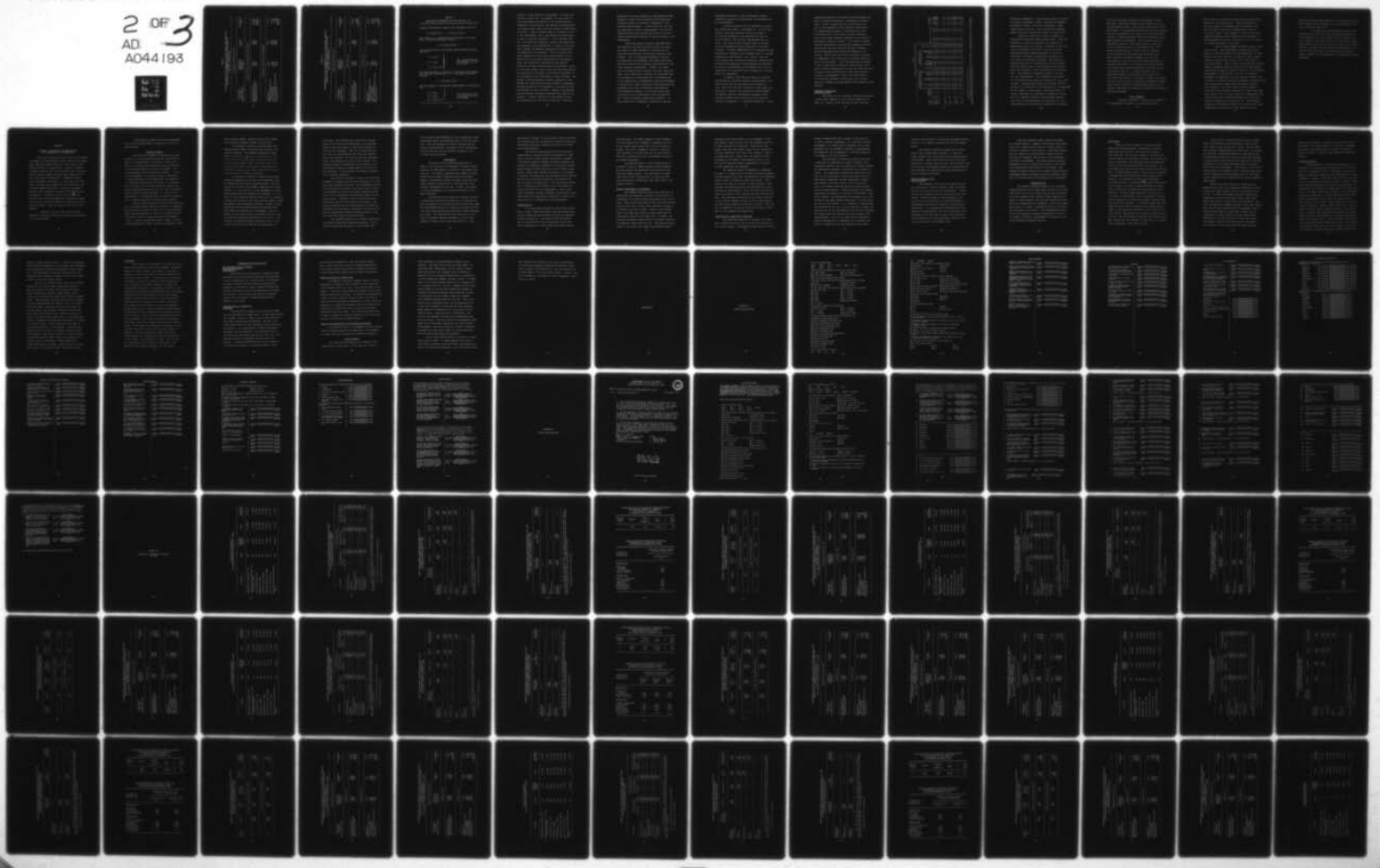


TABLE 13

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #1			
Predictor Set (Socialization Factors)			
Job Satisfaction	-.6087	.5423	43.68
Supervisory Treatment	.4176	.4696	32.75
Coworker Relations	.2446	.3984	23.57
			100.00
Criterion Set (Role Stereotypes)			
Competency	.5863	.5607	42.13
Physical & Operational Job Standards	.2783	.4814	31.05
Fear of Success	-.0990	.1568	3.29
Role Definition/Prescription	-.1727	.0810	.88
Overprotection	.3065	.4111	22.65
			100.00

TABLE 14

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set 2			
Predictor Set			
Job Satisfaction	.9150	.2392	99.00
Supervisory Treatment	.7935	.0001	. . .
Coworker Relations	.2560	-.0237	1.00
			Σ=100.00
Criterion Set			
Competency	-.1327	.2002	16.39
Physical & Operational Job Standards	-.6923	.1703	11.85
Fear of Success	.2408	.4038	66.63
Role Definition/Prescription	-.1585	.1106	5.00
Overprotection	.9957	.0169	.13
			Σ=100.00

TABLE 15

CALCULATION PROCEDURES FOR THE LOADINGS (Ls)

Canonical Correlation results in an expression such as:

$$b_1y_1+b_2y_2+b_3y_3+\ldots = a_1x_1+a_2x_2+a_3x_3+\ldots$$

The loading (L) is developed by calculating a new variable, called the canonical variate.

$$c = b_1y_1+b_2y_2+b_3y_3+\ldots$$

and then calculating the Pearson Product-Moment Correlations for

$$\left.\begin{array}{l} c_1 = a_1x_1, \\ c_2 = a_2x_2, \\ c_3 = a_3x_3, \text{ etc.} \end{array}\right\}$$

The correlations are the loadings for the x variables

The same procedure is followed in developing the loadings for the other variable set (i.e., the second canonical variate)

$$p = a_1x_1+a_2x_2+a_3x_3+\ldots$$

and the loading is the Pearson Product-Moment Correlations for

$$\left.\begin{array}{l} p_1 = b_1y_1, \\ p_2 = b_2y_2, \\ p_3 = b_3y_3, \text{ etc.} \end{array}\right\}$$

The correlations are the loadings for the y variables

related" to each canonical relationship. For the first canonical variate set, for example, the rank order of role stereotypes contributing to the relationship was competency, overprotection, and physical and operational job standards when ordering by the canonical coefficients or weights. Fear of success seems to contribute little to the relationship, while role definition/prescription is seen as marginally important. Using loadings, however, the order was competency, physical and operational job standards, and overprotection, a change in the rank order between the measures overprotection and physical and operational job standards. While no further rank order changes occur when using the percentage ΣL^2 as a measure of the variables contribution to the relationships, the differences identified in the relative importance of these variables may be significant. While no rank order changes occur across the three measures for the predictor set variables, the relative importance of the variables to the relationship is seen to change. The measure of the percentage of variate commonality (percentage ΣL^2) associated with each variable is apparently the most sensitive of the measures to variations in the contribution of those variables. However, this measure does not provide information regarding the signs of the loadings. A typical approach to the analysis of the relationships would use both the loadings (L) and the

percentage of variate commonality associated with each variable to obtain both directional and contribution information about the variable's importance to the canonical relationships. A cutoff level for the loading (typically a value of approximately .30) would be identified below which the variable would not be considered sufficiently important to the relationship to be investigated.

Using the analysis technique described above, the values for the first canonical variate set indicate that all three variables in the predictor set contribute significantly to the first canonical relationship. Only the variables competency, physical and operational job standards, and overprotectiveness from the criterion set contribute significantly to the first canonical relationship. Overall, the combination of perceived good coworker relations, perceived equal (fair) supervisory treatment, and perceived high job satisfaction is associated with the combinations of high perceptions of competency, perceived confidence in the ability to meet the physical and operational job standards, and a lack of perceived overprotection. Job satisfaction appears to be the most significant contributor to this relationship from the predictor set, closely followed by supervisory treatment. In the criterion set, competency is apparently the most

important contributor to the relationship, closely followed by physical and operational job standards and by overprotection.

A similar analysis can be conducted for canonical variate set number 2 (see Table 14). In this case, however, given the canonical variate set number 1, none of the variables in the predictor set meet its $L \geq .30$ criterion, and only one (job satisfaction) is close. One criterion set variable (fear of success) would be considered of major importance to the relationship. A careful examination of the loadings for the criterion set, however, would probably lead to including competency in the analysis. As a result, given the first variate set, the second variate set indicates that an additional association exists between the perception of high job satisfaction in the predictor set, and the combination of a perceived fear of success and high perception of competency.

In summary, following the Alpert and Peterson methodology for analyzing canonical relationships, four basic factors must be considered and accounted for. First, while the canonical correlation coefficients are sufficient to reflect the existence of relationships, the squared canonical coefficients represent shared variation between linear composites of the original variates as opposed to the variables themselves. A more

appropriate measure of the shared variation between the sets of variables themselves is redundancy as defined above. Second, interpreting the relative contribution of the variables to each canonical relationship will appropriately require a consideration of their correlations with the canonical variates (loadings), rather than simply assessing importance from vectors of standardized canonical weights. The canonical weights seem more appropriate for prediction purposes while the correlations with the canonical variates (loadings) are more appropriate for explaining underlying constructs. Third, since each pair of canonical variates is independent of all other pairs, different relationships arise from each. "Key" variables that may appear in two or more pairs of canonical variates will still yield different associations for each pair when the other variables highly correlated with those same canonical variates are considered. Fourth, the cutoff points for including variables in the variate set involves subjective judgment and must depend on the purpose of the analysis.

Canonical Correlation Analyses by AFSC

The results of the canonical correlation analysis for each AFSC examined in the study are summarized in Table 16. Details of the analysis for each AFSC are

TABLE 16

CANONICAL CORRELATION ANALYSIS BY CAREER FIELD*

Career Field	N	Canonical Relationship No.	Socialization Factor Canonical Coefficients: Job Satisfaction	Supervisory Treatment	Coworker Relations	Stereotype Variable Canonical Coefficients: Competency	Physical & Operational Job Standards	Fear of Success	Role Definition/ Prescription	Overprotection	Canonical R	Canonical R^2	Redundancy† Per AFSC
30XXX	311	1	-.5135	.3968	.3795	.6763	.0957	-.0906	-.2113	.3980	.5982	.3578	p/c = .2150 c/p = .1305
31XXX	51	1	-.3526	.3730	.5377	.8217	-.1743	.0590	-.1580	.4071	.5981	.3577	p/c = .2253 c/p = .0954
32XXX	273	1	-.5138	.4724	.3058	.5765	.1938	-.1164	-.0661	.3775	.6919	.4788	p/c = .3136
		2	.9604	.7642	.1828	-.6098	-.3600	.0023	.4367	1.1357	.2608	.0680	
		3	-.1051	.8020	-1.0954	-.6811	.9363	.5241	-.3238	-.0147	.2374	.0563	c/p = .2877
42XXX	271	1	-.7968	.2899	.0478	.4758	.4323	-.1685	-.1716	.2648	.6688	.4473	p/c = .2734
		2	-.8392	-.8550	-.4167	-.0504	.8098	-.0837	.3142	-.9754	.2816	.0793	c/p = .1962
43XXX	489	1	.6821	-.4106	-.1634	-.4641	-.4963	.0601	.1814	-.2236	.6210	.3856	p/c = .2293
		2	.8545	.7032	.4180	.3712	-.8957	.0750	-.4592	.7003	.2562	.0656	c/p = .1698
53XXX	73	1	-.7084	.5113	-.0228	.6614	.4192	-.2145	-.0540	-.0561	.6721	.4517	p/c = .1854 c/p = .1793
54XXX	147	1	.5752	-.4546	-.2403	-.6961	-.2516	.1160	.2238	-.1385	.7072	.5002	p/c = .3285
		2	.9228	.8409	.1736	-.2810	-.6113	.4512	-.3224	1.0833	.3329	.1108	c/p = .2139
55XXX	97	1	-.7281	.0635	.4269	.6880	.1288	-.0576	-.4414	.2751	.5844	.3415	p/c = .1967 c/p = .1152

*Significance for all canonical Rs is $\alpha = .001$.

†Redundancy is a function of which variable set is taken as a base. As reported in the table, p/c is the redundancy explained in the predictor set (socialization factors) given the criterion set (stereotype variables). c/p is the redundancy explained in the criterion set given the predictor set.

presented in Appendix C. This analysis does not include the missile maintenance (44XXX), munitions and weapons maintenance (46XXX), and vehicle maintenance (47XXX) career fields since only zero, one and two responses respectively were returned from women in these fields.

Analysis of the data in Table 16 reveals no significant differences across career fields. From the standpoint of variation explained, the canonical R^2 demonstrates that, as a minimum, 34 percent of the variation is explained, with most of the career fields demonstrating much higher percentages of variation explained. As noted in the previous description of the canonical correlation technique, this measure of explained variation is overstated due to the inherent multicollinearity and/or autocorrelation which exists among the variables in both the predictor and criterion sets. The measure of redundancy, however, corrects for this overstatement. The redundancy calculations for the predictor set given the criterion set ($R_{p/c}$) for the AFSC indicates that between 18.5 percent and 32.9 percent of the variation in the predictor set is explained by the canonical relationships. The predictor set, of course, represents the respondent's perceptions of how well the personal on-the-job relationships support a high level of job performance and satisfaction. The interpretation of the canonical analysis thus indicates

that when stereotype variables are perceived to exist, they have a significant impact on the adaptation of the enlisted female worker to the military craft career field environment. The redundancy calculations for the criterion set given the predictor set ($R_{c/p}$) for the various AFSCs indicate a lower percentage of variation explained by the same canonical relationships. This indicates that the respondents perceive a much larger amount of variation in the criterion set than in the predictor set. The smaller values for $R_{c/p}$, in fact, tend to reinforce the conclusions that the stereotype variables have a major impact on the woman's perception of her job socialization, since the relatively small percentage of variation explained in the stereotype variables explains a relatively much larger percentage of variation in the socialization factors. It should be noted that in behavioral studies of this nature, particularly with such large data sources, the ability to explain 20 percent or more of the variation is generally considered to demonstrate highly significant relationships which may be of practical importance in designing or modifying a pragmatic working environment.

Other Comments

Space was provided on the survey instrument to all respondents to identify any concerns affecting

their views of Air Force life which were not specifically measured by the questionnaire. Twenty-one percent of the total number of respondees used this space to comment on various issues and to express their views of the survey itself. These comments, along with the large number of telephone calls received by the researchers from respondees, provide an indication of the high degree of interest generated by the study.

Many of these comments related directly to this thesis effort. Many respondents indicated that while physical and/or operational job requirements may, to some degree, limit their ability to function as well as male coworkers, their primary concern lies in the areas of social adjustment. That is, many of the women who provided comments expressed concern over perceived discriminatory supervisory treatment or coworker relations, over perceived prejudgment of their ability to do the job (negative assessment of competency) and over perceived unequal distribution of workloads and shift assignments (overprotection). They indicated that these social adjustment problems were inherent to the "man's world" work environment in which they find themselves employed and doubted that much would change, even if career field entry requirements were defined which would include only women with sufficient physical strength for the specific job. Other comment categories not directly related to the thesis effort were summarized as indicators of other concerns that are

impacting enlisted women employed in Air Force craft skills. These summaries were forwarded to Air Staff agencies for their information and action.

It is hoped that these expressed concerns may provide the Air Staff and other interested agencies with some documentation of the problems faced by women as they try to adapt to previously all male Air Force craft skills. These concerns can provide both action items for Air Staff officers concerned with the motivation and productivity of the Air Force work force, and topics which may require further research and investigation by a concerned Air Force management.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND SUGGESTIONS FOR FUTURE STUDY

The current stated Air Force policy is to increase the number of enlisted women on active duty and to expand their employment opportunities to a wide range of previously all-male job specialities. There is, however, increasing evidence that this transition has in the past and is currently marked by doubts about female attitudinal and physical capabilities. Feedback from the actual employment environment, in this thesis and elsewhere, indicates that supervisors, male coworkers, and the women themselves perceive a variety of problems, and that each perception is unique to the experience of the observer. A review of the civilian literature indicated that role stereotypes have significant impact upon the socialization of women to a previously all-male work environment. With this impetus, the study investigated:

1. Whether or not Air Force enlisted women employed in selected craft skills perceive the existence of role stereotypes.

2. The degree of impact these role stereotypes have on the enlisted women's perception of their job socialization.

Research Summary

This study was designed to determine the relationship of role stereotypes which may be perceived to apply to enlisted women in selected Air Force craft skills to the perceived effectiveness and productivity of the enlisted women in the work environment. The role stereotype variables examined included: (1) perceived assessment of the female worker's competency, (2) perceived physical and operational job standards, (3) perceived overprotection for women, (4) perceived fear of success, and (5) perceived male-oriented role definitions/prescriptions for the job. The job socialization factors examined included: (1) perceived job satisfaction, (2) perceived level of coworker relations, and (3) perceived equality of supervisory treatment.

Each of these variables and factors were measured by a structured survey instrument presented in Appendix B. The population examined included all Air Force enlisted women currently assigned to jobs in the communications-electronics (30XXX), missile electronics maintenance (31XXX), avionics systems specialties (32XXX), aircraft systems maintenance (42XXX), aircraft maintenance (43XXX),

metal working (54XXX), mechanical/electrical (55XXX), and structural/pavements (56XXX) career fields.

The research proposition was evaluated using Pearson product-moment correlation and canonical correlation analyses. The research proposition stated that: *The extent to which role stereotypes are perceived to exist for and impact the socialization of the Air Force enlisted women in selected craft skills parallels the extent to which these stereotypes are perceived to exist for and impact the socialization of civilian women in similiar occupations.*

As reported in Chapter IV difficulty was experienced in measuring two of the role stereotypes, fear of success and role definition/prescription. The difficulty may be due to any one or a combination of three factors: (1) the inability of the respondents to understand instructions and complete the instrument, (2) the lack of a male respondee control group, and (3) an active rejection an the part of Air Force enlisted women of these two specific role stereotype variables. However, highly significant Pearson product-moment correlations were found among the remaining role stereotypes, among the factors of job socialization, and between these two sets of variables considered individually or as groups. The direction of these correlations parallels those of the civilian literature and supports the expectations of

this study. The findings thus confirm that the perceptions of Air Force enlisted women in the surveyed career fields are similar to those found reported in the civilian literature. That is, as women perceive that they are overprotected, that they are viewed as being less competent, and that the physical and operational job standards are heavily male oriented, they experience negative perceptions of the effects on job socialization similar to those reported in the civilian literature. To this extent, the research proposition is clearly supported.

The civilian literature, however, has typically attempted to measure only one role stereotype at a time. This study combined the several role stereotypes and the job socialization variables into variate sets in order to investigate an overall relationship between perceptions of role stereotypes and perceived impacts on job socialization. Canonical correlation analysis techniques were used for this portion of the study. The results indicated that role stereotypes as a group are associated with the level of adaptation and job socialization experienced by female enlisted workers in the Air Force craft career field environment.

The research proposition is clearly supported by two separate statistical analysis techniques. As Air Force enlisted women employed in the surveyed craft

skills perceive the existence of role stereotypes, these stereotypes impact the perceived level of job socialization. With the exception of fear of success and role definition/prescription, the extent of this association closely parallels the relationships reported in the civilian work environment.

Conclusions

The ability of Air Force enlisted women to adapt to the craft skill environment is currently being examined and questioned by a variety of individuals and agencies. For example, broadening the number of career fields open to women is generally seen as desirable. However, congressional concern has been voiced over the women's physical limitations vs. the operational performance requirements of the job. Further, the issues of social adjustment are of continuing concern to Air Staff personnel.

The DOD and the Air Staff are currently involved in developing operational performance job standards for each job specialty to be applied equally across the sexes. This development should be a relatively straight-forward task using human engineering techniques already developed and tested. The identification and resolution of the social adjustment problems documented in the written comments, however, may be much more difficult. Such

difficulties, however, do not provide a logical rationale for avoiding the task of identifying specific causes and developing appropriate corrective actions to alleviate the problems defined.

The social problems associated with perceived overprotection, perceived negative assessment of competency, perceived unfair/unequal supervisory treatment, and perceived negative feedback from male coworkers are reported in respondee's comments to be the most critical problem areas for women entering Air Force craft career fields. These women indicate that even if the problem of physical and operational job standards can be resolved, this will not eliminate stereotypic role behavior of male coworkers and supervisors. They believe this behavior is psychologically oriented, and is not based on a logical evaluation of job requirements. Each of the social adjustment concerns represent unique problem areas which should be investigated, evaluated, and dealt with individually by a concerned Air Force management.

Overprotection

In a previously all-male Air Force work environment, a woman worker may believe that she is perceived by male supervisors and coworkers as weak and helpless, requiring protection. The female worker may believe she is restricted from duty on hazardous, dirty jobs, and is assigned only to well-supervised daytime shifts

and operations. The women reported in their comments that this preferential treatment is resented not only by the female worker herself but also by her male co-workers, and that it frequently results in limiting their exposure to various facets of the task environment and in restricting their job knowledge, training, and career progression.

The reported effect of such overprotection is believed to place an added workload on male coworkers who must perform the undesirable jobs which are withheld from female workers. The organization or supervisor which allows overprotection to exist may thus incur problems with scheduling, work flow, morale, and upgrade training.

Negative Assessment of Competency

The comments indicating that male coworkers and supervisors are perceived to believe in high levels of incompetency for female workers seem particularly significant. Women workers may perceive that they must perform tasks twice as well as their male coworkers in order to be thought of as half as good. Further, the mistakes made by one women may be seen as being generalized to other women working in the same field. In effect, the talented, successful female worker is believed viewed as the exception rather that the rule. The female enlisted worker in Air Force craft skills may consider herself

prejudged, even before arrival at an assignment, to be less capable, less reliable, and less competent relative to newly assigned male coworkers. Women workers may believe that they must endure longer initial periods of "proving themselves" than their male coworkers. Even if the women pass this initial test, the impact of later mistakes may be viewed as being magnified and as reinforcing the perceived female incompetency in the eyes of male supervisors and coworkers.

The perceived negative assessment of competency can lead to a classic use of the self-fulfilling prophecy. As women perceive that they are expected to be incompetent, added pressure is imposed on their work effort. This pressure can lead to a variety of minor mistakes. Male coworkers and supervisors may view these errors as vindicating the preconception, and at the same time tend to ignore the facets of the job which are done correctly and well. This selective evaluation of the women's work may in turn lead to feedback indicating she is doing poorly, and add further pressure to her work situation. Thus, as she is expected to do poorly, she will do poorly in the eyes of her coworkers and supervisors.

Unequal/Unfair Supervisory Treatment

The immediate supervisor is probably the single most influential person that a new employee encounters in his job environment. The immediate supervisor has a major

impact on female craft skill workers in the areas of: (1) shift and task assignments, (2) on-the-job training assignments, (3) reward and/or punishment for the work performed, and (4) feedback concerning her performance. Job adaptation can be enhanced by a skilled supervisor or hindered by one less skilled.

The statistical correlations indicate that when a supervisor is perceived to actively integrate role stereotyped behavior into his actions with female workers, his supervisory treatment is perceived to be unequal or unfair. If a supervisor's demands are perceived as too high, if he is believed to require the female worker to consistently outperform her male coworkers to achieve some reward in the "man's world" of Air Force craft skills, the female worker may perceive discriminations and job related pressure. These perceptions may produce outstanding work efforts on the part of some women. More often, however, job satisfaction and productivity will be lowered as the woman becomes discouraged. The same would be true for male workers. If a supervisor's expectations are perceived as too low, if he is believed to expect the female worker to be less competent than her male coworkers, the female worker may respond with less competent task accomplishment. Even if the female worker responds to negative perceptions of competency with increased work effort, a supervisor with low expectations may waste

valuable time and effort in reviewing the female worker's efforts in an attempt to find and correct anticipated errors.

The effects of perceived supervisory overprotection have already been discussed. It should be noted, however, that some women perceive overprotection as desirable. While these women may perceive overprotection as a "natural feminine right" and be content with the situation, the negative effects of overprotection on male coworkers and organizational effectiveness should not be ignored or minimized.

Negative Feedback From Male Coworkers

The coworkers can provide the focal point for the individual to learn the values, norms, and expectations of the group and of the organization. Coworkers provide a source of social identity for the individual. Since the number of women assigned to the craft skills is relatively low, the female worker's relationship with her male coworkers is particularly significant. If a female worker perceived that male coworkers stereotypically view her as protected, less competent and as less than an equal working partner, this perception will have detrimental impacts on the job socialization of the female worker.

Some male coworkers readily accept the female as a working partner. Comments indicate that some female craft skill workers believe they are viewed by male co-workers as invading a "man's world." These women believe they are viewed as an uncomfortable nuisance which at best must be tolerated, and at worst can be harrassed, criticized, and demeaned. Some female workers perceive themselves to be in a unique social vacuum, with little job related contact with other Air Force women. The research findings indicate that as women workers perceive stereotyped behavior/feedback from male coworkers, their level of job satisfaction and productivity is decreased.

Recommendations

The research findings suggest that the reported problems perceived by enlisted women working in Air Force craft skills are varied, complex and not easily resolved. Given the complexity and variety of these reported problems, it seems apparent that required corrective actions should be implemented with reference to three time frames: short-range (1-2 years), intermediate-range (3-10 years), and long-range (11-25 years). The recommendations which follow are grouped by proposed implementation timing in an attempt to provide a developmental guideline for Air Force personnel management agencies.

Short-Range

While the total number of Air Force enlisted women has increased markedly, the number of enlisted women currently working in the craft skills remains relatively low. The civilian literature indicates that as more women enter previously all-male craft fields, the level of perceived role stereotyping and the associated level of job socialization difficulties diminish. As more women enter the Air Force craft career field environment, it should become less of a "man's world" and levels of stereotyping and socialization difficulties should diminish. As coworkers and supervisors experience increased exposure to successful, productive female craft skill workers, the levels of perceived negative assessment of competency and perceived overprotection should decrease. As female workers perceive the reduction in the levels of stereotyping, their perceptions of unfair/unequal supervisory treatment and negative coworker feedback should also decrease. It therefore seems clear that steps should be taken to determine the highest optimal number of enlisted women desired by the Air Force in the craft skills. Recruitment and utilization plans and policies can then be developed to achieve that desired level. Best results would be obtained if this level is a significant percentage of each AFSC involved.

The civilian literature indicates that if women enter the organization with distorted or overly optimistic views of what the job has to offer, they may experience initial disappointment and frustration. To diminish any perceived incongruence between job expectations and organizational reality, Air Force enlisted women assigned to craft career fields should be provided with a realistic introduction to the work environment prior to reaching their first duty assignments. Specifically, the Air Force should develop and implement plans to provide these women with an accurate and detailed description of the career fields, identifying both operational and social adaptation requirements.

Most of the male craft skill supervisors and coworkers had little or no experience managing and interacting with female workers in the job environment prior to 1973. As these male supervisors and coworkers gain experience in dealing with women workers, they should become more adept in aiding female job adaptation. However, the perceived problems reported by the women suggest that the Air Force should develop and implement plans to provide males working in craft skill careers with an orientation to female workers and their expectations. Specifically, the Air Force should insure that these individuals, especially the supervisors, are aware of and sensitive to the unique problems faced by female

workers as they attempt to adapt to the craft skill work environment. The identification of the women's reported perceptions may surprise many of the men in the career fields and serve as a base for some additional behavioral changes.

Intermediate-Range

The development of physical and operational job standards is currently being reviewed, not only in the Air Force, but throughout the DOD. Many women reported that physical limitations hampered their job-related task accomplishments. However, other women indicated that they have little or no physically difficult tasks to perform. These women reported that specific physical and operational job requirements vary across the broad range of Air Force craft skills. It seems appropriate, therefore, to develop human engineering techniques to analyze the physical and operational requirements of each craft skill career field. This analysis, as a minimum, should examine the required levels of strength, stamina, reach, height, etc., and the range of specific tasks normally required in each career field. Finally, this analysis should examine the differences in physical requirements for different assignments within each career field. Clearly, strength requirements for aircraft maintenance specialists (43XXX) working with large aircraft would vary, at least somewhat, from those of aircraft maintenance specialists (43XXX) working with

smaller, lighter weight aircraft. It must be recognized that some men are hampered in job-related task accomplishment by physical limitations of strength, height, reach, etc. The development of physical and operational job standards would, therefore, benefit both male and female workers in the craft career fields.

Many of the clothing items, tools, and equipment required in the craft career fields were designed to meet the needs of an almost totally male work force. Women reported that uniforms, safety shoes, parkas, gloves, and rain gear were difficult to obtain in proper sizes. Other research indicated that some tools needed for task accomplishment are awkward, bulky, or inappropriate for women. Required craft skill equipment has, to some extent, been designed, developed and procured with a male work force in mind. With the addition of women to the craft career work force, it now seems appropriate to reexamine the needs and requirements of workers in the craft skills. Safety and/or survival gear is particularly critical in this respect. Using the data obtained from the analysis of physical and operational job standards, steps should be taken to design, develop, and procure clothing items, tools, and equipment for a broader range of individuals. These steps should enhance the ability of smaller, weaker persons, particularly women, to be more effective, productive workers.

Long-Range

Many factors are considered in the design, development and acquisition of Air Force systems. Currently, emphasis is being placed on the factor of logistical support, a factor which must be provided throughout the life cycle of the system. A major portion of the logistic support involves the ability of the enlisted work force to maintain and repair systems in minimum time with maximum efficiency. The inclusion of women in the maintenance work force has extended the range of physical capabilities which individuals in that force possess. However, the lead times involved in the acquisition of some systems have resulted in the current procurement of systems which are designed with only male physical capabilities in mind. Future maintenance systems should be designed with this broader range of physical capabilities in mind, so that the entire maintenance work force, male and female, will be able to perform the necessary maintenance tasks with no specific group being disadvantaged. To the extent that systems are designed with the enlisted work force in mind, the logistics support is enhanced. The Air Force should insure that future system acquisitions consider the physical capabilities of the workers, most particularly women, who will bear the responsibility for repairing, maintaining, and supporting that system throughout its life cycle.

Suggestions for Future Study

The Variables Fear of Success and Role Definition/ Prescription

The difficulties encountered in measuring these variables have been previously identified and discussed. It may be appropriate for a future study to investigate the fear of success and role definition/prescription variables in more detail, using a research design which can more effectively control the conditions for collecting the data. Such a study could provide invaluable insight into the effects of these variables on the results of this study.

Research Using a Comparative Data Base

The statistical results of this study are based upon the perceptions of women alone. As many women pointed out, however, there is a need to solicit the opinions of their male supervisors and coworkers. The men in the craft career fields are the individuals whose perceptions and behavior, to a large degree, influence the women's successful job socialization. The instrument used in this study was specifically designed to allow for a comparative analysis of responses from both males and females. A slightly modified version of this questionnaire should be applied to a selected sample of male

supervisors and coworkers in the craft career fields. Such a study would help verify the reported perceptions of the female workers and provide a baseline from which to make comparisons between male and female perceptions.

Complete Analysis of Thesis Data

The research instrument requested several items of demographic information, such as MAJCOM, time-in-service, time-in-career field, age, etc., which was not used in this thesis. A follow-on study should be designed to more thoroughly analyze this data base. In addition to examining the effects of time in service, maturity (age), and time in career field on the women's perceptions, the data should be examined in a question-by question basis using descriptive statistics to evaluate the level of specific concerns reported by Air Force women. This analysis would provide a means of comparing the data collected in this study with the data from previous AF/DPXHM studies.

Physical and Operational Job Standard Development

As indicated earlier, we recommend that the current effort to develop physical and operational job standards by career field be continued and expanded as required.

Final Thoughts

Air Force enlisted women are no different from other groups of individuals in that they will differ in

their reactions to the stereotypes studied in this research. One group of Air Force enlisted women, the most qualified, enthusiastic, bright, mature, experienced and willing, will respond to any challenge or obstacle with an increased determination to succeed and to prove themselves capable, valuable workers. A second group of Air Force enlisted women will not respond well to challenge and will, in fact, withdraw from the craft career fields or the Air Force rather than attempt to overcome any special obstacles they perceived to exist. A third and by far the largest group will, however, fall somewhere between these two extremes. This intermediate group represents both a unique opportunity and a very real challenge to concerned Air Force managers. These women are representative of the majority of Air Force recruits. They are bright, enthusiastic, and willing, but somewhat less mature and experienced than the first group. Given the necessary encouragement these women can be functional, productive Air Force workers. Unfortunately, they may be relatively easily intimidated by perceived stress and by negative, job-related feedback from male supervisors and coworkers.

The Air Force cannot afford to ignore this large, third group of women. It seems apparent that the Air Force should recognize the unique social adjustment problems of enlisted women employed in the craft career fields.

Only through this recognition can the Air Force begin to develop and implement appropriate managerial techniques to improve the productivity, use, and retention of enlisted women in the craft career fields. Clearly, this is an obligation a concerned Air Force management cannot afford to ignore.

APPENDIXES

APPENDIX A

DRAFT QUESTIONNAIRE

What is your present rank?

[A] E-1 [B] E-2 [C] E-3 [D] E-4 [E] E-5 [F] E-6

[G] E-7 [H] E-8 [I] E-9

Under what type enlistment plan did you join the Air Force:

[A] 4 year enlistee

[B] 4 year, Project Guarantee

[C] 6 year, Project Guarantee, base-of-choice

[D] 6 year enlistee

[E] 6 year, Project Guarantee

After basic training, what type of training/assignment did you receive?

[A] By-pass

[B] Direct Duty Assignment

[C] Technical School

[D] Special Project

How many years total active federal military service have you completed?

[A] Less than 1 year

[B] 1 year

[C] 2 years

[D] 3 years

[E] 4 years

[F] 5 - 8 years

[G] 9 - 12 years

[H] 13 - 16 years

[I] 17 - 20 years

[J] 21 - 24 years

[K] More than 24 years

How long have you been on your current job?

[A] Less than 1 month

[B] 1 - 6 months

[C] 7 - 12 months

[D] 13 - 18 months

[E] 19 - 24 months

[F] More than 2 years

Indicate your current career field from the following list:

[A] Communications-Electronics 30XXX

[B] Missile Electronics Maintenance 31XXX

[C] Avionics Systems Specialties 32XXX

[D] Aircraft Systems Maintenance 42XXX

[E] Aircraft Maintenance 43XXX

[F] Missile Maintenance 44XXX

[G] Munitions and Weapons Maintenance 46XXX

[H] Vehicle Maintenance 47XXX

[I] Metal Working 53XXX

[J] Mechanical/Electrical 54XXX

[K] Structural/Pavement 55XXX

[L] Sanitation 56XXX

What is your present skill level?

[A] 3 [B] 5 [C] 7 [D] 9

Sex: [A] Female [B] Male

Which one of the following do you consider yourself?

[A] Black/Negro
[B] Spanish or Mexican American
[C] Puerto Rican
[D] American Indian
[E] Oriental
[F] White
[G] Other

What was the last level of education that you completed?

[A] 9th grade or less
[B] 10th grade
[C] 11th grade
[D] 12th grade, high school graduate
[E] GED high school graduate
[F] One year of college
[G] Two years of college
[H] Three years of college
[I] No degree, four years of college
[J] Bachelor's degree (BA)
[K] Master's degree (MA)
[L] Doctorate (MD, PhD or equivalent)

What is your current marital status?

[A] Married
[B] Divorced
[C] Separated
[D] Widowed
[E] Single

How many children do you have?

[A] None
[B] One
[C] Two
[D] Three
[E] Four or more

What geographic area below is your home of record?

[A] Maine, New Hampshire, Rhode Island, Massachusetts, Vermont, Connecticut, New York

[B] New Jersey, Delaware, Pennsylvania, Maryland, Virginia, West Virginia, District of Columbia

[C] Alabama, Florida, North Carolina, South Carolina, Mississippi, Tennessee, Georgia

[D] Arkansas, New Mexico, Louisiana, Texas, Oklahoma, Arizona

[E] Kentucky, Ohio, Illinois, Indiana, Michigan

[F] California, Idaho, Utah, Montana, Nevada, Oregon, Washington, Alaska, Hawaii

[G] Missouri, Nebraska, Wyoming, Colorado, Iowa, Kansas, North Dakota, South Dakota, Minnesota, Wisconsin

[H] Other such as Guam, Puerto Rico, Virgin Islands, etc.

What is your present command?

[A] MAC
[B] TAC
[C] SAC
[D] ATC
[E] AFSC
[F] Other

SEXUAL HARASSMENT

Women do not experience unwelcome physical contact on the job.	Strongly agree	A B C D E F G	Strongly disagree
Women do not experience unwelcome physically-oriented propositions on the job.	Strongly agree	A B C D E F G	Strongly disagree
Women are approached by their superiors with unwelcome dating advances.	Strongly Agree	A B C D E F G	Strongly disagree
Objectionable sexually-oriented terminology (cussing, etc.) is frequently used by males around women on the job.	Strongly agree	A B C D E F G	Strongly disagree
Attractive women at work are given special consideration in assignments, promotions, task allocations.	Strongly agree	A B C D E F G	Strongly disagree
A women's responses to a supervisor's dating invitations affects her performance rating.	Strongly agree	A B C D E F G	Strongly disagree
Women avoid problems on the job by dressing unattractively.	Strongly agree	A B C D E F G	Strongly disagree
Sexually oriented stories/jokes frequently embarrassed women on the job.	Strongly agree	A B C D E F G	Strongly disagree
Women are embarrassed by the display of nude/revealing (center fold) pictures in the work area.	Strongly agree	A B C D E F G	Strongly disagree

COMPETENCY

My skills are equal to those of male coworkers in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
I am given more responsibility than male coworkers in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
I can perform all assigned tasks in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
I do the same work as my male coworkers.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
My male coworkers accept my work as equal to theirs.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
My supervisor has confidence in my ability to perform the tasks in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
Men are more capable than women in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
When technical problems occur in my AFSC, my opinions are sought by my coworkers.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
My male coworkers have trust and confidence in my technical abilities.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
My work is more reliable than that of my male coworkers.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree

JOB SATISFACTION

I am satisfied with my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
I enjoy being in the U.S. Air Force.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
My assigned AFSC is similar to my preferred AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
The information I received about my career field before entering the Air Force was accurate.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
Given the opportunity, I would change to another career field.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
I would advise other women to join the Air Force.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
Given the opportunity I would leave the Air Force immediately.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree

Use the responses listed below to describe how often each of these factors applies to your job in the Air Force.

Challenging	Always	A	B	C	D	E	F	G	Never
Recognized for work well done	Always	A	B	C	D	E	F	G	Never
Frustrating	Always	A	B	C	D	E	F	G	Never
Chance to fully use my abilities	Always	A	B	C	D	E	F	G	Never
Gives me a sense of accomplishment	Always	A	B	C	D	E	F	G	Never
Workload too heavy	Always	A	B	C	D	E	F	G	Never
Boring	Always	A	B	C	D	E	F	G	Never
Gives me a sense of pride	Always	A	B	C	D	E	F	G	Never

ROLE DEFINITION/PRESCRIPTION

Indicate the desirability of the following characterisitcs which you might observe in a coworker:

Ambitious	Most desirable	A	B	C	D	E	F	G	Least desirable
Independent	Most desirable	A	B	C	D	E	F	G	Least desirable
Emotional	Most desirable	A	B	C	D	E	F	G	Least desirable
Submissive	Most desirable	A	B	C	D	E	F	G	Least desirable
Competitive	Most desirable	A	B	C	D	E	F	G	Least desirable
Self-confident	Most desirable	A	B	C	D	E	F	G	Least desirable
Tactful	Most desirable	A	B	C	D	E	F	G	Least desirable
Gentle	Most desirable	A	B	C	D	E	F	G	Least desirable
Logical	Most desirable	A	B	C	D	E	F	G	Least desirable
Conceited	Most desirable	A	B	C	D	E	F	G	Least desirable

Evaluate each of the following characteristics as being more masculine or feminine.

Ambitious	Masculine	A	B	C	D	E	F	G	Feminine
Independent	Masculine	A	B	C	D	E	F	G	Reminine
Emotional	Masculine	A	B	C	D	E	F	G	Feminine
Submissive	Masculine	A	B	C	D	E	F	G	Feminine
Competitive	Masculine	A	B	C	D	E	F	G	Feminine
Self-confident	Masculine	A	B	C	D	E	F	G	Feminine
Tactful	Masculine	A	B	C	D	E	F	G	Feminine
Gentle	Masculine	A	B	C	D	E	F	G	Feminine
Logical	Masculine	A	B	C	D	E	F	G	Feminine
Conceited	Masculine	A	B	C	D	E	F	G	Feminine

PHYSICAL AND OPERATIONAL JOB STANDARDS

I am strong enough to accomplish the tasks in my AFSC.	Strongly agree	A B C D E F G — Strongly disagree
I have the stamina needed to accomplish the tasks in my AFSC.	Strongly agree	A B C D E F G — Strongly disagree
The workload in my AFSC is heavier than I expected.	Strongly agree	A B C D E F G — Strongly disagree
My AFSC is more physically demanding for me than for a man.	Strongly agree	A B C D E F G — Strongly disagree
I need help to do tasks that typically would take only one man to accomplish.	Strongly agree	A B C D E F G — Strongly disagree
The equipment I am expected to work with is too bulky for me.	Strongly agree	A B C D E F G — Strongly disagree
The tools I am expected to use are too bulky and heavy for me.	Strongly agree	A B C D E F G — Strongly disagree
The safety equipment/clothing provided for my job is inappropriate or unavailable for me.	Strongly agree	A B C D E F G — Strongly disagree
I believe that there are tasks in this AFSC that should be performed by men, not women.	Strongly agree	A B C D E F G — Strongly disagree
Women, because they are generally shorter than most men, are at a disadvantage in this AFSC.	Strongly agree	A B C D E F G — Strongly disagree

OVERPROTECTIVENESS

Male coworkers help me lift heavy objects more than they help men.	Strongly agree	A B C D E F G	Strongly disagree
My supervisor tries to keep me from experiencing the "unpleasant" portions of the job.	Strongly agree	A B C D E F G	Strongly disagree
I share equally in the shift work assignments.	Strongly agree	A B C D E F G	Strongly disagree
I get preferential treatment in the assignment of hazardous, heavy, dirty work.	Strongly agree	A B C D E F G	Strongly disagree
I am offered assistance on the job when I don't need help.	Strongly agree	A B C D E F G	Strongly disagree
Male coworkers who offer help feel "put down" if I don't accept.	Strongly agree	A B C D E F G	Strongly disagree
As a women, my technical work is judged less harshly than the work of my male coworkers.	Strongly agree	A B C D E F G	Strongly disagree
I am restricted from doing certain tasks that are normally part of my career field.	Strongly agree	A B C D E F G	Strongly disagree
In trying to offer assistance, male coworkers frequently interfere with my work effort.	Strongly agree	A B C D E F G	Strongly disagree
I am required to perform the full range of tasks associated with my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
My section's overall output has decreased as a result of males helping female coworkers.	Strongly agree	A B C D E F G	Strongly disagree

SUPERVISORY TREATMENT

Is your immediate supervisor male/female, military/civilian?

[A] Female, civilian

[B] Female, military

[C] Male, civilian

[D] Male, military

Which statement describes your immediate supervisor in giving recognition for a job well done?

[A] Gives about the same recognition to both males and females for **same** level of performance.

[B] Gives more recognition for same level of performance to females **than** males.

[C] Gives more recognition for same level of performance to males than females.

My supervisor judges my work more harshly because I am a woman.	Strongly agree	A B C D E F G	Strongly disagree
My immediate supervisor accepts me very well now.	Strongly agree	A B C D E F G	Strongly disagree
I find that my supervisor makes allowances for me that he does not make for males under his supervision.	Strongly agree	A B C D E F G	Strongly disagree
My supervisor is more reluctant to take disciplinary action against a women than against a man.	Strongly agree	A B C D E F G	Strongly disagree

Use the responses below to indicate how each description applies to your supervisor.

Listens to my suggestions.	Strongly agree	A B C D E F G	Strongly disagree
Thinks of people as machines rather than human beings.	Strongly agree	A B C D E F G	Strongly disagree
Patient.	Strongly agree	A B C D E F G	Strongly disagree
Treats women less fairly than men on the job.	Strongly agree	A B C D E F G	Strongly disagree
Hinders rather than helps.	Strongly agree	A B C D E F G	Strongly disagree

COWORKER RELATIONS

Indicate how often each of these traits applies to your male coworkers.

a.	Friendly	Always	1	2	3	4	5	6	Never
b.	Uncooperative	Always	1	2	3	4	5	6	Never
c.	Have attitudes similar to mine	Always	1	2	3	4	5	6	Never
d.	Accept me	Always	1	2	3	4	5	6	Never
e.	Bother me while I work	Always	1	2	3	4	5	6	Never
f.	Are hostile to women in the same job.	Always	1	2	3	4	5	6	Never

In your opinion, how would male coworkers classify women in the following categories:

a.	As a professional working woman.	Never	1	2	3	4	5	6	Always
b.	As an equal working partner.	Never	1	2	3	4	5	6	Always
c.	As "one of those pushy WAFs."	Never	1	2	3	4	5	6	Always
d.	As a woman who is working until she can find a husband.	Never	1	2	3	4	5	6	Always
e.	As a "Women's Libber."	Never	1	2	3	4	5	6	Always
f.	As a morale booster to the unit.	Never	1	2	3	4	5	6	Always

FEAR OF SUCCESS

For each situation you will be asked to indicate which of the two people would feel unhappier about the failure. In doing this try to think about the consequences of the failure for each person and remember that the consequences of failure are not always entirely negative. In some cases, a person might feel unhappy but also secretly a bit relieved about failure. For each situation rate how unhappy you think <u>each</u> person would be, using the the scales provided.

You and a male coworker did not get promoted. Which of you will be most unhappy about not being selected?

Extremely unhappy — Not unhappy

	A	B	C	D	E	F	G
You							
Male Coworker							

You and a male coworker have been competing for a position of higher responsibility. Which of you will be most unhappy about not being selected?

Not unhappy — Extremely happy

	A	B	C	D	E	F	G
You							
Male Coworker						D	

You and a male coworker both failed a quality control evaluation. Who would feel most unhappy about the failure?

Extremely unhappy — Not unhappy

	A	B	C	D	E	F	G
You							
Male Coworker							

You and a male coworker were in the final competition for Airman/NCO of the Quarter. Who will feel more unhappy about not being selected?

Not unhappy — Extremely unhappy

	A	B	C	D	E	F	G
You							
Male Coworker							

For each situation you will be asked to indicate which of the two people would feel happier about the success. In doing this, try to think about the <u>consequences</u> of the success for each person and remember that the consequences of success are not always entirely positive; there can be negative side-effects as well. In some cases, a person might feel happy but also secretly a bit apprehensive about succeeding. For each situation rate how happy you think <u>each</u> person would be using the scales provided.

You and a male coworker have been selected for below-the-zone promotion. Which of you will be happier with this promotion?

Not happy at all — Extremely happy

	A	B	C	D	E	F	G
Male Coworker							
You							

You and a male coworker have been nominated for Airman/NCO of the Quarter. Who will be happier about being selected?

Not happy at all — Extremely happy

	A	B	C	D	E	F	G
Male Coworker							
You							

You and a male coworker are being considered for a position of increased responsibility. Which of you will be happier with being selected for this position?

Not happy at all — Extremely happy

	A	B	C	D	E	F	G
Male Coworker							
You							

You and a male coworker have had suggestions accepted which may lead to a monitary award. Which of you will be happier about the increased identification coming from your suggestion's acceptance?

Extremely happy — Not happy at all

	A	B	C	D	E	F	G
Male Coworker							
You							

APPENDIX B

SURVEY QUESTIONNAIRE

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

REPLY TO ATTN OF: SLGR (SLSR 6-77A/Lt Col Adams/AUTOVON 78-72527)

SUBJECT: Job Survey Questionnaire

14 February 1977

TO:

1. The attached questionnaire was prepared by a research team at the Air Force Institute of Technology, Wright-Patterson AFB, Ohio in support of on-going studies by HQ USAF Air Staff personnel. The purpose of the questionnaire is to identify and measure the attitudes and perceptions of enlisted women in several specific AFSCs.

2. You are requested to provide an answer or comment for each question. Headquarters USAF Survey Control Number 77-46 has been assigned to this questionnaire. Your participation in this research is voluntary, but will provide a significant contribution to understanding women's views of life in the Air Force.

3. The individual responses to this survey are anonymous; that is, there is no way to link a given set of responses to any individual. Please remove this cover sheet before returning the completed questionnaire. Your cooperation in providing this data will be highly appreciated. The completed questionnaire should be returned in the attached envelope within one week after receipt.

Henry W. Parlett

HENRY W. PARLETT, Colonel, USAF
Associate Dean for Graduate Education
School of Systems and Logistics

3 Atch
1. Questionnaire
2. Return Envelope
3. AF Form 223

RETURN ONLY THRU
MILITARY POSTAL SYS
NO STAMP REQUIRED

Strength Through Knowledge

JOB SURVEY QUESTIONNAIRE

This instrument is designed to collect information on your views of Air Force life and your relationships with the people you work with. Please read each question carefully and respond in the manner indicated by the instructions above each group of questions. Then transfer your responses to the enclosed scan answer sheet using a soft lead (#1 or 2) pencil. Please do not use ballpoint or felt-tipped pens. When you have completely transferred and checked your responses, please enclose both the questionnaire and the scan answer sheet in the stamped, pre-addressed envelope and put it in the mail. Please have your response in the mail within one week of receiving this questionnaire. Your cooperation is greatly appreciated.

Please provide the following background information.

1. What is your present rank?

   [A] E-1 [B] E-2 [C] E-3 [D] E-4 [E] E-5

   [F] E-6 [G] E-7 [H] E-8 [I] E-9

2. After basic training, what type of training/assignment did you receive?

   [A] By-Pass
   [B] Direct Duty Assignment
   [C] Technical School
   [D] Special Project

3. How many years total active federal military service have you completed?

   [A] Less than 1 year
   [B] 1 year
   [C] 2 years
   [D] 3 years
   [E] 4 years
   [F] 5 - 8 years
   [G] 9 - 12 years
   [H] 13 - 16 years
   [I] 17 - 20 years
   [J] 21 - 24 years
   [K] More than 24 years

4. How long have you been on your current job?

   [A] Less than 1 month
   [B] 1 - 6 months
   [C] 7 - 12 months
   [D] 13 - 18 months
   [E] 19 - 24 months
   [F] More than 2 years

5. Indicate your current career field from the following list:

   [A] Communications-Electronics 30XXX
   [B] Missile Electronics Maintenance 31XXX
   [C] Avionics Systems Specialties 32XXX
   [D] Aircraft Systems Maintenance 42XXX
   [E] Aircraft Maintenance 43XXX
   [F] Missile Maintenance 44XXX
   [G] Munitions and Weapons Maintenance 46XXX
   [H] Vehicle Maintenance 47XXX
   [I] Metal Working 53XXX
   [J] Mechanical/Electrical 54XXX
   [K] Structural/Pavement 55XXX

6. What is your present skill level?

[A] 1 [B] 3 [C] 5 [D] 7 [E] 9

7. What is your present command?

[A] MAC [B] TAC [C] SAC [D] ATC [E] AFSC [F] Other

8. What was the last level of education that you completed?

[A] 9th grade or less
[B] 10th grade
[C] 11th grade
[D] 12th grade, high school graduate
[E] GED high school graduate
[F] One year of college
[G] Two years of college
[H] Three years of college
[I] No degree, four years of college
[J] Bachelor's degree (BA, BS)
[K] Master's degree (MA, MS)
[L] Doctorate (M.D., Ph.D. or equivalent)

9. What is your current marital status?

[A] Married
[B] Divorced
[C] Separated
[D] Widowed
[E] Single

10. How many children do you have?

[A] None
[B] One
[C] Two
[D] Three
[E] Four or more

11. Sex: [A] Female [B] Male

12. Which one of the following do you consider yourself?

[A] Black/Negro
[B] Spanish or Mexican American
[C] Puerto Rican
[D] American Indian
[E] Oriental
[F] White
[G] Other

13. Is your immediate supervisor male/female, military/civilian?

[A] Female, Civilian
[B] Female, Military
[C] Male, Civilian
[D] Male, Military

14. Which statement describes your immediate supervisor in giving recognition for a job well done?

[A] Gives about the same recognition to both males and females for same level of performance.

[B] Gives more recognition for same level of performance to females than males

[C] Gives more recognition for same level of performance to males than females

For each situation you will be asked to indicate which of the two people would feel unhappier about the failure. In doing this try to think about the consequences of the failure for each person and remember that the consequences of failure are not always entirely negative. In some cases, a person might feel unhappy but also secretly a bit relieved about failure. For each situation, rate how unhappy you think <u>that</u> person would be, using the scales provided.

15. You and a male coworker did not get promoted. Which of you will be most unhappy about not being selected?

			You					
Extremely unhappy	A	B	C	D	E	F	G	Not unhappy
	H	I	J	K	L	M	N	
			Male Coworker					

16. You and a male coworker have been competing for a position of higher responsibility. Which of you will be most unhappy about not being selected?

			You					
Not unhappy	A	B	C	D	E	F	G	Extremely unhappy
	H	I	J	K	L	M	N	
			Male Coworker					

17. You and a male coworker both failed a quality control evaluation. Who would feel most unhappy about the failure?

			You					
Extremely unhappy	A	B	C	D	E	F	G	Not unhappy
	H	I	J	K	L	M	N	
			Male Coworker					

18. You and a male coworker were in the final competition for Airman/NCO of the Quarter. Who will feel more unhappy about not being selected?

			You					
Not unhappy	A	B	C	D	E	F	G	Extremely unhappy
	H	I	J	K	L	M	N	
			Male Coworker					

Evaluate each of the following characteristics as being more masculine or feminine.

19.	Ambitious	Masculine	A	B	C	D	E	F	G	Feminine
20.	Independent	Masculine	A	B	C	D	E	F	G	Feminine
21.	Emotional	Masculine	A	B	C	D	E	F	G	Feminine
22.	Submissive	Masculine	A	B	C	D	E	F	G	Feminine
23.	Competitive	Masculine	A	B	C	D	E	F	G	Feminine
24.	Self-confident	Masculine	A	B	C	D	E	F	G	Feminine
25.	Tactful.	Masculine	A	B	C	D	E	F	G	Feminine
26.	Gentle.	Masculine	A	B	C	D	E	F	G	Feminine
27.	Logical.	Masculine	A	B	C	D	E	F	G	Feminine
28.	Conceited.	Masculine	A	B	C	D	E	F	G	Feminine

In your opinion, how would male coworkers classify women in the following categories.

29.	As a professional working woman.	Never	A	B	C	D	E	F	G	Always
30.	As an equal working partner.	Never	A	B	C	D	E	F	G	Always
31.	As "one of those pushy WAFs."	Never	A	B	C	D	E	F	G	Always
32.	As a woman who is working until she can find a husband.	Never	A	B	C	D	E	F	G	Always
33.	As a "Women's Libber."	Never	A	B	C	D	E	F	G	Always
34.	As a morale booster to the unit.	Never	A	B	C	D	E	F	G	Always

Use the responses listed below to describe how often each of these factors applies to your job in the Air Force.

35.	Challenging.	Always	A	B	C	D	E	F	G	Never
36.	Recognized for work well done.	Always	A	B	C	D	E	F	G	Never
37.	Frustrating.	Always	A	B	C	D	E	F	G	Never
38.	Chance to fully use my abilities.	Always	A	B	C	D	E	F	G	Never
39.	Gives me a sense of accomplishment.	Always	A	B	C	D	E	F	G	Never
40.	Workload too heavy.	Always	A	B	C	D	E	F	G	Never
41.	Boring.	Always	A	B	C	D	E	F	G	Never
42.	Gives me a sense of pride.	Always	A	B	C	D	E	F	G	Never

Use the responses below to indicate how strongly you agree or disagree with each of the statements listed.

43.	Women, because they are generally shorter than most men, are at a disadvantage in this AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
44.	My immediate supervisor accepts me very well now.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
45.	As a women, my technical work is judged less harshly than the work of my male coworkers.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
46.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.									
47.	My male coworkers accept my work as equal to theirs.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
48.	Given the opportunity I would leave the Air Force immediately.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
49.	I am restricted from doing certain tasks that are normally part of my career field.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
50.	I am strong enough to accomplish the tasks in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
51.	I do the same work as my male coworkers.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
52.	My supervisor is more reluctant to take disciplinary action against a women than against a man.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
53.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.									
54.	I can perform all assigned tasks in my AFSC.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
55.	My supervisor tries to keep me from experiencing the "unpleasant" portions of the job.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree

56. Male coworkers who offer help feel "put down" if I don't accept. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

57. My skills are equal to those of male coworkers in my AFSC. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

58. The workload in my AFSC is heavier than I expected. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

59. QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.

60. I enjoy being in the U.S. Air Force. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

61. My male coworkers have trust and confidence in my technical abilities. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

62. The equipment I am expected to work with is too bulky for me. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

63. I am offered assistance on the job when I don't need help. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

64. My assigned AFSC is similar to my preferred AFSC. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

65. My supervisor judges my work more harshly because I am a woman. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

66. QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.

67. My work is more reliable than that of my male coworkers. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

68. Given the opportunity, I would change to another career field. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

69. I need help to do tasks that typically would take only one man to accomplish. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

70. When technical problems occur in my AFSC, my opinions are sought by my coworkers. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

71. Male coworkers help me lift heavy objects more than they help men. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

72. I find that my supervisor makes allowances for me that he does not make for males under his supervision. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

73. I can avoid unwelcome attention on the job by dressing unattractively. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

74. QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.

75. The safety equipment/clothing provided for my job is inappropriate or unavailable for me. Strongly agree | A | B | C | D | E | F | G | Strongly disagree

76. I get preferential treatment in the assignment of hazardous, heavy, dirty, work Strongly agree | A | B | C | D | E | F | G | Strongly disagree

77.	I would advise other women to join the Air Force.	Strongly agree	A B C D E F G	Strongly disagree
78.	In trying to offer assistance, male coworkers frequently interfere with my work effort.	Strongly agree	A B C D E F G	Strongly disagree
79.	I am given more responsibility than male coworkers in my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
80.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.			
81.	The tools I am expected to use are too bulky and heavy for me.	Strongly agree	A B C D E F G	Strongly disagree
82.	I am required to perform the full range of tasks associated with my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
83.	I believe that there are tasks in this AFSC that should be performed by men, not women.	Strongly agree	A B C D E F G	Strongly disagree
84.	I share equally in the shift work assignments.	Strongly agree	A B C D E F G	Strongly disagree
85.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.			
86.	My supervisor has confidence in my ability to perform the tasks in my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
87.	My AFSC is more physically demanding for me than for a man.	Strongly agree	A B C D E F G	Strongly disagree
88.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.			
89.	I am satisfied with my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
90.	Men are more capable than women in my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
91.	QUESTION DELETED. PLEASE MARK RESPONSE "A" ON THE ANSWER SHEET.			
92.	I have the stamina needed to accomplish the tasks in my AFSC.	Strongly agree	A B C D E F G	Strongly disagree
93.	My section's overall output has decreased as a result of males helping female coworkers.	Strongly agree	A B C D E F G	Strongly disagree

Indicate how often each of these traits applies to your male coworkers.

94.	Friendly	Always	A	B	C	D	E	F	G	Never
95.	Uncooperative.	Always	A	B	C	D	E	F	G	Never
96.	Have attitudes similar to mine.	Always	A	B	C	D	E	F	G	Never
97.	Accept me.	Always	A	B	C	D	E	F	G	Never
98.	Bother me while I work.	Always	A	B	C	D	E	F	G	Never
99.	Are hostile to women in the same job.	Always	A	B	C	D	E	F	G	Never

Use the responses below to indicate how each description applies to your supervisor.

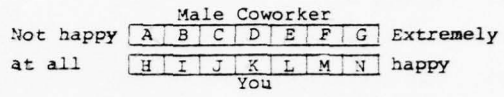
100.	Listens to my suggestions.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
101.	Thinks of people as machines rather than human beings.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
102.	Patient.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
103.	Treats women less fairly than men on the job.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree
104.	Hinders rather than helps.	Strongly agree	A	B	C	D	E	F	G	Strongly disagree

Indicate the desirability of the following characteristics which you might observe in a coworker:

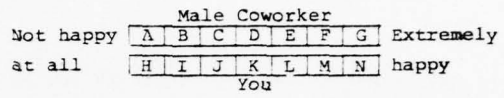
105.	Ambitious	Most desirable	A	B	C	D	E	F	G	Least desirable
106.	Independent	Most desirable	A	B	C	D	E	F	G	Least desirable
107.	Emotional	Most desirable	A	B	C	D	E	F	G	Least desirable
108.	Submissive	Most desirable	A	B	C	D	E	F	G	Least desirable
109.	Competitive	Most desirable	A	B	C	D	E	F	G	Least desirable
110.	Self-Confident	Most desirable	A	B	C	D	E	F	G	Least desirable
111.	Tactful	Most desirable	A	B	C	D	E	F	G	Least desirable
112.	Gentle	Most desirable	A	B	C	D	E	F	G	Least desirable
113.	Logical	Most desirable	A	B	C	D	E	F	G	Least desirable
114.	Conceited	Most desirable	A	B	C	D	E	F	G	Least desirable

For each situation you will be asked to indicate which of the two people would feel happier about the success. In doing this, try to think about the consequences of success for each person and remember that the consequences of success are not always entirely postive; there can be negative side-effects as well. In some cases, a person might feel happy but also secretly a bit apprehensive about succeeding. For each situation rate how happy you think that person would be, using the scales provided.

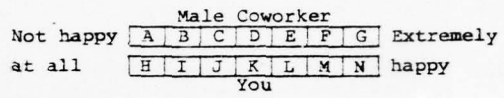
115. You and a male coworker have been selected for below-the-zone promotion. Which of you will be happier with this promotion?



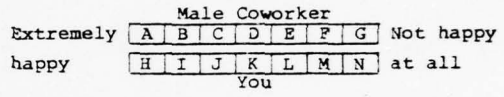
116. You and a male coworker have been nominated for Airman/NCO of the Quarter. Who will be happier about being selected?



117. You and a male coworker are being considered for a position of increased responsibility. Which of you will be happier with being selected for this position?



118. You and a male coworker have had suggestions accepted which may lead to a monitary award. Which of you will be happier about the increased identification coming from your suggestion's acceptance?



Please identify any other concerns which may affect your views of Air Force life.

APPENDIX C

CANONICAL CORRELATION ANALYSIS BY AFSC

DESCRIPTIVE STATISTICS
FOR COMMUNICATIONS-ELECTRONICS (30XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	305	9→63	26.0066	10.7715
Physical and Operational Job Standards (POJS)	307	10→70	27.4300	12.0059
Job Satisfaction (JS)	307	14→98	55.2769	14.4710
Competency (COMP)	303	10→70	33.7690	9.5629
Overprotection (OPRO)	307	11→77	30.7557	9.2108
Coworker Relations (CORE)	307	12→84	41.1401	11.2405
Fear of Success (FS_5)	282	0→104	63.0142	19.3716
Role Definition/Prescription (RD_7)	298	-60→+60	13.4128	7.1544

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FPR COMMUNICATIONS-ELECTRONICS (30XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.2501 (.001)§	+	.3306 (.001)	+	.3962 (.001)
Competency	-	-.4473 (.001	+	.4265 (.001)	+	.3780 (.001)
Physical & Operational Job Standards	-	-.3018 (.001)	+	.2748 (.001)	+	.3296 (.001)
Fear of Success	-	.1150 (.005)	+	-.1120 (.031)	+	-.0534 (.187)
Role Definition/ Prescription	-	.1054 (.035)	+	-.0112 (.424)	+	-.065 (.124)

*N $\geq$ 278 for all correlations. The actual N varies from 278 to 305 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR COMMUNICATIONS-ELECTRONICS (30XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.5604 (.001)†	.4471 (.001)	-.1371 (.011)	.0615 (.146)
Competency	. . . .	1.---	.3958 (.001)	-.2349 (.001)	.0163 (.391)
Overprotection	. . . .	. . . .	1.---	-.0062 (.459)	.1031 (.039)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.1210 (.023)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 275 for all correlations. The actual N varies from 273 to 304 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR COMMUNICATIONS--ELECTRONICS (30XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3451 (.001)†	1.----	. . . .
Coworker Relations	.5312 (.001)	-.3444 (.001)	1.----

*N $\geq$ 304 for all correlations. The actual N varies from 304 to 302 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR COMMUNICATIONS-ELECTRONICS (30XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.5982	.3578	132.634	15	.000

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATION FACTORS
FOR COMMUNICATIONS-ELECTRONICS (30XXX)

Variables of Criterion and Predictor Set	Standardized Canonical Weights, or Canonical Coefficients
	Canonical Variate Set 1
Predictor Set	
Supervisory Treatment	.3968
Job Satisfaction	-.5135
Coworker Relations	.3795
Criterion Set	
Physical & Operational Job Standards	.0957
Competency	.6763
Overprotection	.3980
Fear of Success	-.0806
Role Definition/ Prescription	-.2113

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR COMMUNICATIONS-ELECTRONICS (30XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
Predictor Set (Socialization Factors)					
1	.5892	.3578	.6010	.2150	100.00
Criterion Set (Stereotype Variables)					
1	.5982	.3578	.3648	.1305	100.0

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR COMMUNICATIONS--ELECTRONICS (30XXX)

Canonical Variate Set #1

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	-.5135	.4706	34.33
Supervisory Treatment	.3968	.4504	31.45
Coworker Relations	.3795	.4699	34.22
			100.00
Criterion Set			
Competency	.6763	.5484	46.08
Physical & Operational	.0957	.3865	22.89
Job Standards	-.0906	.1526	3.57
Fear of Success	-.2113	.0800	.98
Role Definition/Prescription	.3980	.4157	26.48
Overprotection			100.00

DESCRIPTION STATISTICS
FOR MISSILE ELCECTRONIC (31XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	51	9→63	26.7451	10.0117
Physical and Operational Job Standards (POJS)	51	10→70	30.5294	11.9304
Job Satisfaction (JS)	51	14→98	52.8627	13.0568
Competency (COMP)	51	10→70	32.7451	9.9857
Overprotection (OPRO)	51	11→77	30.3725	9.8934
Coworker Relations (CORE)	51	12→84	41.6078	10.5832
Fear of Success (FS_5)	51	0→104	64.5882	16.5677
Role Definition/Prescription (RD_7)	50	60→+60	14.9400	5.6835

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FOR MISSILE ELECTRONICS MAINTENANCE (31XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.1340 (.174)§	+	.3462 (.006)	+	.4190 (.001)
Competency	-	-.4439 (.001)	+	.4758 (.001)	+	.3588 (.005)
Physical & Operational Job Standards	-	-.1374 (.168)	+	.0833 (.281)	+	.0256 (.428)
Fear of Success	-	.1913 (.089)	+	.0198 (.445)	+	-.0858 (.275)
Role Definition/ Prescription	-	.2166 (.065)	+	.0410 (.389)	+	-.0897 (.268)

*N $\geq$ 50 for all correlations. The actual N varies from 50 to 51 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR MISSILE-ELECTRONIC MAINTENANCE (31XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.3707 (.004)†	.1993 (.080)	.0761 (.298)	.2785 (.025)
Competency	. . . .	1.---	.3893 (.002)	-.1556 (.138)	-.0430 (.384)
Overprotection	. . . .	. . . .	1.---	-.1141 (.213)	.2153 (.067)
Fear of Success	. . . .	. . . .	. . . .	1.---	.1257 (.192)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*$N \geq 50$ for all correlations. The actual N varies from 50 to 51 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR MISSILE ELECTRONICS MAINTENANCE (31XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3994 (.002)†	1.----	. . . .
Coworker Relations	.5060 (.001)	-.3677 (.004)	1.----

*N $\geq$ 51 for all correlations. The actual N varies from 51 to 51 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR MISSILE ELECTRONICS MAINTENANCE (31XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.5981	.3577	30.604	15	.010

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATIONS FACTORS
FOR MISSILE ELECTRONICS MAINTENANCE (31XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients
	Canonical Variate Set 1
Predictor Set	
Supervisory Treatment	.3730
Job Satisfaction	-.3526
Coworker Relations	.5377
Criterion Set	
Physical & Operatonal Job Standards	-.1743
Competency	.8817
Overprotection	.4071
Fear of Success	.0590
Role Definition/ Prescription	-.1580

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR MISSILE ELECTORNICS MAINTENANCE (31XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
Predictor Set (Socialization Factors)					
1	.5981	.3577	.6299	.2253	100.00
Criterion Set (Stereotype Variables)					
1	.5981	.3577	.2666	.0954	100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR MISSILE ELECTRONICS MAINTENANCE (31XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #1			
Predictor Set			
Job Satisfaction	-.3526	.4024	23.97
Supervisory Treatment	.3730	.4731	33.11
Coworker Relations	.5377	.5386	42.92
			100.00
Criterion Set			
Competency	.8217	.5514	63.77
Physical & Operational Job Standards	-.1743	-.1088	2.48
Fear of Success	.0590	-.0985	2.04
Role Definition/Prescription	-.1580	.0998	2.08
Overprotection	.4071	.3758	29.63
			100.00

DESCRIPTIVE STATISTICS
FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	264	9→63	27.0076	11.1191
Pnysical and Operational Job Standards (POJS)	271	10→70	30.4834	12.9749
Job Satisfaction (JS)	266	14→98	55.1955	14.5581
Competency (COMP)	266	10→70	34.0926	11.0935
Overprotection (OPRO)	270	11→77	31.3271	10.0547
Coworker Relations (CORE)	271	12→84	41.7244	10.6563
Fear of Success (FS_5)	250	0→104	63.2440	19.2268
Role Definition/Prescription (RD_7)	267	-60→+60	13.9476	6.3841

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OR SOCIALIZATION AND ROLE STEREOTYPES* FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.3396 (.001) §	+	.3831 (.001)	+	.5303 (.001)
Competency	-	-.5292 (.001)	+	.4424 (.001)	+	.4745 (.001)
Physical & Operational Job Standards	-	-.4414 (.024)	+	.2574 (.001)	+	.4394 (.188)
Fear of Success	-	.1264 (.024)	+	-.1757 (.003)	+	-.0571 (.188)
Role Definition/ Prescription	-	.1431 (.010)	+	.0071 (.454)	+	-.0704 (.129)

*N $\geq$ 243 for all correlations. The actual N varies from 243 to 270 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE
STEREOTYPE VARIABLES (CRITERION SET)*
FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.5932 (.001)†	.5118 (.001)	-.0859 (.088)	-.0380 (.269)
Competency	. . . .	1.---	.5255 (.001)	-.1654 (.004)	-.0496 (.210)
Overprotection	. . . .	. . . .	1.---	-.0440 (.247)	-.1364 (.210)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0203 (.375)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 245 for all correlations. The actual N varies from 245 to 269 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3942 (.001)†	1.----	. . . .
Coworker Relations	.4876 (.001)	-.2773 (.001)	1.----

*N $\geq$ 260 for all correlations. The actual N varies from 260 to 265 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.6819	.4788	186.034	15	.000
2	.2608	.0680	30.628	8	.000
3	.2374	.0563	13.830	3	.003

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATIONS FACTORS
FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients		
	Canonical Variate Set 1	Canonical Variate Set 2	Canonical Variate Set 3
Predictor Set			
Supervisory Treatment	.4724	.7642	.8020
Job Satisfaction	-.5138	.9604	-.1051
Coworker Relations	.3058	.1828	-1.0954
Criterion Set			
Physical & Operational Job Standards	.1938	-.3600	.9363
Competency	.5764	-.6098	-.6811
Overprotection	.3775	1.1357	-.0147
Fear of Success	-.1164	.0023	.5241
Role Definition/ Prescription	-.0661	.4367	-.3238

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
		Predictor Set (Socialization Factors)			
1	.6919	.4788	.5892	.2821	89.96
2	.2608	.0680	.3381	.0230	8.33
3	.2374	.0563	.1505	.0085	2.71
				Σ=.3136	Σ=100.00
		Criterion Set (Stereotype Variables)			
1	.6919	.4788	.4094	.1960	68.13
2	.2608	.0680	.2439	.0829	28.81
3	.2374	.0563	.1566	.0088	3.06
				Σ=.2877	Σ=100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #1			
Predictor Set			
Job Satisfaction	-.5138	.5677	38.08
Supervisory Treatment	.4724	.5488	35.58
Coworker Relations	.3058	.4721	26.34
			100.00
Criterion Set			
Competency	.5764	.6357	41.23
Physical & Operational Job Standards	.1938	.5112	26.67
Fear of Success	-.1164	.1619	2.67
Role Definition/Prescription	-.0661	.1058	1.14
Overprotection	.3775	.5266	28.29
			100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Canonical Variate Set #2			
Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	.9604	.2588	97.07
Supervisory Treatment	.9742	.0445	2.87
Coworker Relations	.1828	.0047	.06
			Σ=100.00
Criterion Set			
Competency	-.6098	.1934	45.11
Physical & Operational Job Standards	-.3600	.1546	28.83
Fear of Success	.0023	.0995	11.94
Role Definition/Prescription	.4367	.1002	12.11
Overprotection	1.1357	.0409	2.01
			Σ=100.00

CONTRIBUTION OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AVIONICS SYSTEMS SPECIALTIES (32XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #3			
Predictor Set			
Job Satisfaction	-.1051	.0386	5.87
Supervisory Treatment	.8020	.0914	32.71
Coworker Relations	-1.0954	.1249	61.42
			Σ=100.00
Criterion Set			
Competency	-.6811	.0377	3.18
Physical & Operational Job Standards	.9368	.1209	33.10
Fear of Success	.5241	.1362	42.16
Role Definition/Prescription	-.3238	.0840	16.04
Overprotection	-.0147	.0493	5.52
			Σ=100.00

DESCRIPTIVE STATISTICS
FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	263	9→63	26.2966	11.2818
Physical and Operational Job Standards (POJS)	267	10→70	32.7041	13.6530
Job Satisfaction (JS)	264	14→98	57.3712	15.5859
Competency (COMP)	269	10→70	36.1933	11.0811
Overprotection (OPRO)	269	11→77	30.5874	9.4595
Coworker Relations (CORE)	266	12→84	42.9887	10.7108
Fear of Success (FS_5)	243	0→104	64.7737	19.0090
Role Definition/Prescription (RD_7)	263	-60→+60	12.2281	8.4709

EXPECTED VS. ACTUAL PERASON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND RGLE STEREOTYPES* FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.3442 (.001)§	+	.2729 (.001)	+	.3400 (.001)
Competency	-	-.5554 (.001)	+	.2037 (.001)	+	.4199 (.001)
Physical & Operational Job Standards	-	-.5683 (.001)	+	.2035 (.001)	+	.4188 (.001)
Fear of Success	-	.1455 (.012)	+	.0430 (.254)	+	-.0862 (.092)
Role Definition/ Prescription	-	.1105 (.039)	+	.1802 (.002)	+	-.0931 (.069)

*N $\geq$ 238 for all correlations. The actual N varies from 238 to 264 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.6026 (.001)†	.4093 (.001)	-.0031 (.481)	-.0649 (.149)
Competency	. . . .	1.---	.3788 (.001)	-.1144 (.038)	-.0068 (.456)
Overprotection	. . . .	. . . .	1.---	.0173 (.394)	.0461 (.229)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0346 (.297)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 239 for all correlations. The actual N varies from 239 to 268 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.5221 (.001)†	1.----	. . . .
Coworker Relations	.0525 (.001)	-.3114 (.001)	1.----

*N $\geq$ 258 for all correlations. The actual N varies from 258 to 260 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.6688	.4473	163.408	15	.000
2	.2816	.0793	24.954	8	.002

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATION FACTORS
FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients	
	Canonical Variate Set 1	Canonical Variate Set 2
Predictor Set		
Supervisory Treatment	.2899	-.8550
Job Satisfaction	-.7968	-.8392
Coworker Relations	.0478	-.4167
Criterion Set		
Physical & Operational Job Standards	.4323	.8098
Competency	.4758	-.0504
Overportection	.2648	-.9754
Fear of Success	-.1685	-.0837
Role Definition/ Prescription	-.1716	.3142

REDUNDNACY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\tilde{R}^2$ $\lambda \cdot VP$ or $\lambda \cdot VC$	Percent of Total Redundancy
Predictor Set (Socialization Factors)					
1	.6688	.4473	.5567	.2490	91.00
2	.2816	.0793	.3079	.0244	9.00
				Σ=.2734	Σ=100.00
Criterion Set (Stereotype Variables)					
1	.6688	.4473	.3818	.1708	87.5
2	.2816	.0793	.3071	.0244	12.5
				Σ=.1962	Σ=100.0

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Canonical Variate Set #1

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	-.7968	.6465	55.94
Supervisory Treatment	.2899	.4840	31.36
Coworker Relations	.0478	.3080	12.70
			100.00
Criterion Set			
Competency	.4758	.5852	40.11
Physical & Operational Job Standards	.4323	.5672	37.68
Fear of Success	-.1685	.1422	2.37
Role Definition/Prescription	-.1716	.1185	1.64
Overprotection	.2648	.3942	18.20
			100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AIRCRAFT SYSTEMS MAINTENANCE (42XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #2			
Predictor Set			
Job Satisfaction	-.8392	.2700	99.45
Supervisory Treatment	-.8550	-.0185	.55
Coworker Relations	-.4167	.0030	.00
			Σ=100.00
Criterion Set			
Competency	-.0504	-.2000	32.86
Physical & Operational Job Standards	.8098	.2676	58.81
Fear of Success	-.0837	.0751	4.63
Role Definition/Prescription	.3142	.0185	.28
Overprotection	-.9754	.0645	3.42
			Σ=100.00

DESCRIPTIVE STATISTICS
FOR AIRCRAFT MAINTENANCE (43XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	477	9→63	26.4109	10.5685
Physical and Operational Job Standards (POJS)	480	10→70	34.0979	13.5672
Job Satisfaction (JS)	480	14→98	55.7875	15.7913
Competency (COMP)	479	10→70	35.7495	11.1101
Overprotection (OPRO)	480	11→77	31.7750	9.4690
Coworker Relations (CORE)	479	12→84	42.8058	10.5453
Fear of Success (FS_5)	445	0→104	63.2921	19.4308
Role Definition/Prescription (RD_7)	470	-60→+60	11.7766	8.4558

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FOR AIRCRAFT MAINTENANCE (43XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.5301 (.001)§	+	.2581 (.001)	+	.3333 (.001)
Competency	-	-.4677 (.001)	+	.3141 (.001)	+	.3897 (.001)
Physical & Operational Job Standards	-	-.2891 (.001)	+	.3122 (.001)	+	.3494 (.001)
Fear of Success	-	.1433 (.001)	+	-.0353 (.230)	+	-.1206 (.006)
Role Definition/ Prescription	-	-.0193 (.339)	+	-.0421 (.182)	+	-.1488 (.001)

*N $\geq$ 437 for all correlations. The actual N varies from 437 to 476 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR AIRCRAFT MAINTENANCE (43XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.6258 (.001)†	.4112 (.001)	-.1604 (.001)	.0976 (.018)
Competency	. . . .	1.---	.4009 (.001)	-.1910 (.001)	.1199 (.005)
Overprotection	. . . .	. . . .	1.---	.0969 (.021)	-.0545 (.121)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0203 (.337)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 432 for all correlations. The actual N varies from 432 to 476 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR AIRCRAFT MAINTENANCE (43XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3694 (.001)†	1.----	. . . .
Coworker Relations	.4612 (.001)	-.3172 (.001)	1.----

*N $\geq$ 470 for all correlations. The actual N varies from 470 to 472 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR AIRCRAFT MAINTENANCE (43XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.6210	.3856	243.198	15	.000
2	.2562	.0656	34.950	8	.000

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATIONS FACTORS
FOR AIRCRAFT MAINTENANCE (43XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients	
	Canonical Variate Set 1	Canonical Variate Set 2
Predictor Set		
Supervisory Treatment	-.4106	.7032
Job Satisfaction	.6821	.8545
Coworker Relations	-.1634	.4180
Criterion Set		
Physical & Operational Job Standards	-.4963	-.8957
Competency	-.4641	.3712
Overprotection	-.2236	.7003
Fear of Success	.0601	.0750
Role Definition/ Prescripton	.1814	.4592

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION EXPLAINED BY TWO CANONICAL VARIATE SETS FOR AIRCRAFT MAINTENANCE (43XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
		Predictor Set (Socialization Factors)			
1	.6210	.3856	.5331	.2055	89.62
2	.2562	.0656	.3624	.0238	10.38
				Σ=.2293	Σ=100.00
		Criterion Set (Stereotype Variables)			
1	.6210	.3856	.3790	.1462	86.11
2	.2562	.0656	.3604	.0236	13.89
				Σ=.1698	Σ=100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AIRCRAFT MAINTENANCE (43XXX)

Canonical Variate Set #1

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	.6821	.5626	51.33
Supervisory Treatment	-.4106	.4344	30.60
Coworker Relations	-.1634	.3338	18.07
			100.00
Criterion Set			
Competency	-.4641	-.4186	36.80
Physical & Operational Job Standards	-.4963	.5543	42.04
Fear of Success	.0601	.1445	2.86
Role Definition/Prescription	.1814	.0447	.28
Overprotection	-.2236	.3629	18.02
			100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR AIRCRAFT MAINTENANCE (43XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #2			
Predictor Set			
Job Satisfaction	.8545	.2604	95.07
Supervisory Treatment	.7032	.0166	.39
Coworker Relations	.4180	.0569	4.54
			Σ=100.00
Criterion Set			
Competency	.3712	-.1502	19.12
Physical & Operational Job Standards	-.8956	.2809	66.73
Fear of Success	.0750	.0768	4.99
Role Definition/Prescription	-.4592	.1037	9.10
Overprotection	.7003	.0089	.06
			Σ=100.00

DESCRIPTIVE STATISTICS
FOR METAL WORKING (53XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	72	9→63	25.6667	10.1801
Physical and Operational Job Standards (POJS)	71	10→70	28.9155	11.4764
Job Satisfaction (JS)	73	14→98	58.7808	13.3710
Competency (COMP)	73	10→70	33.4795	9.3201
Overprotection (OPRO)	72	11→77	30.4167	8.9392
Coworker Relations (CORE)	72	12→84	40.8333	11.1153
Fear of Success (FS_5)	64	0→104	64.3906	19.7175
Role Definition/Prescription (RD_7)	70	-60→+60	11.5857	7.9755

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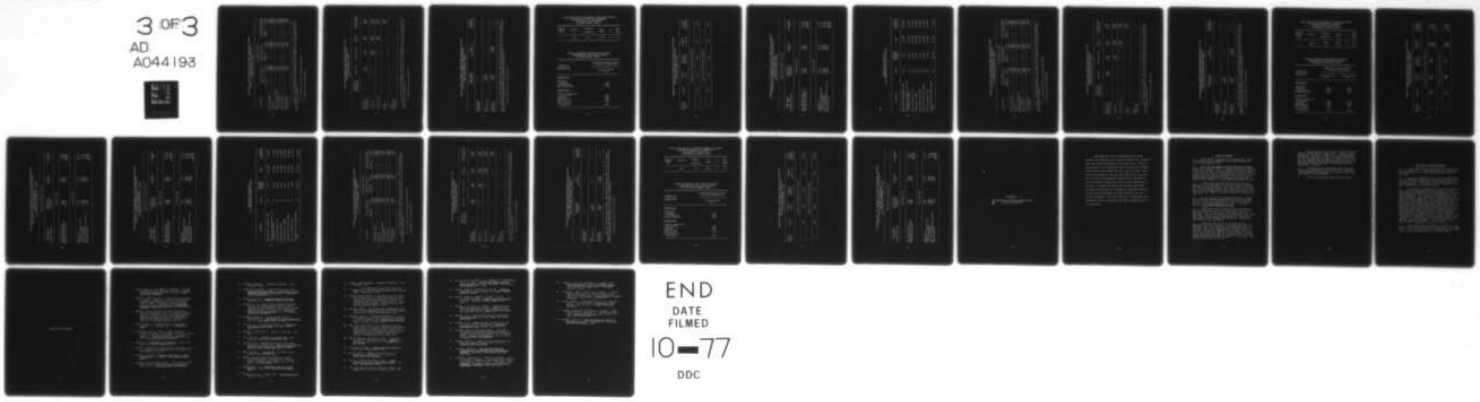

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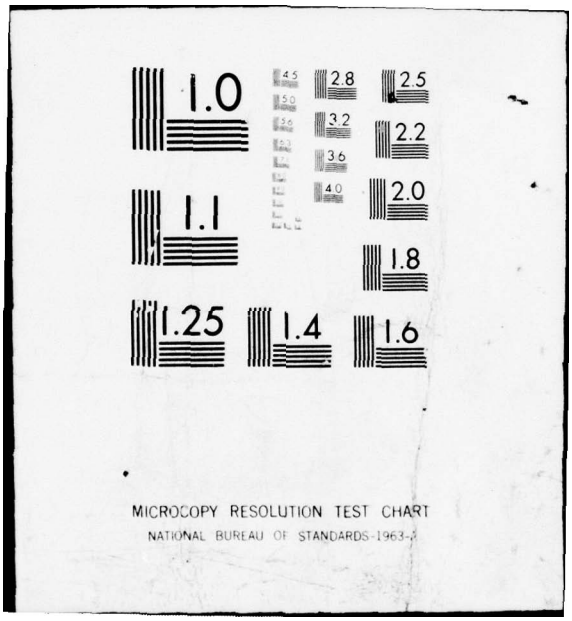
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EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FOR METAL WORKING (53XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.4744 (.001)§	+	.2236 (.031)	+	.3634 (.001)
Competency	-	-.5084 (.001)	+	.2631 (.013)	+	.5088 (.001)
Physical & Operational Job Standards	-	-.2052 (.042)	+	.1433 (.117)	+	.3871 (.001)
Fear of Success	-	.3428 (.003)	+	-.0520 (.343)	+	-.1995 (.058)
Role Definition/ Prescription	-	-.0778 (.261)	+	.0766 (.266)	+	.0984 (.211)

*N $\geq$ 63 for all correlations. The actual N varies from 63 to 73 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR METAL WORKING (53XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.5157 (.001)†	.5758 (.001)	-.1608 (.106)	-.0159 (.449)
Competency	. . . .	1.---	.4770 (.001)	-.3725 (.001)	.3087 (.005)
Overprotection	. . . .	. . . .	1.---	-.2366 (.031)	.0599 (.312)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0656 (.306)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 62 for all correlations. The actual N varies from 62 to 72 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR METAL WORKING (53XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3523 (.001)†	1.----	. . . .
Coworker Relations	.4379 (.001)	-.2763 (.009)	1.----

*N $\geq$ 71 for all correlations. The actual N varies from 71 to 72 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR METAL WORKING (53XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.6721	.4517	40.328	15	.000

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCILAIZATIONS FACTORS
FOR METAL WORKING (53XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients
	Canonical Variate Set 1
Predictor Set	
Supervisory Treatment	.5113
Job Satisfaction	-.7084
Coworker Relations	-.0228
Criterion Set	
Physical & Operational Job Standards	.4192
Competency	.6614
Overprotection	-.6561
Fear of Success	-.2145
Role Definition/ Prescription	-.0540

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION EXPLAINED BY TWO CANONICAL VARIATE SETS FOR METAL WORKING (53XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot$VP or $\lambda \cdot$VC	Percent of Total Redundancy
Predictor Set (Socialization Factors)					
1	.6721	.4517	.4105	.1854	100.00
Criterion Set (Stereotype Variables)					
1	.6721	.4517	.3970	.1793	100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR METAL WORKING (53XXX)

Canonical Variate Set #1

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	-.7084	.5576	55.90
Supervisory Treatment	.5113	.4593	37.93
Coworker Relations	-.0228	-.1854	6.17
			100.00
Criterion Set			
Competency	.6614	.6252	43.70
Physical & Operational Job Standards	.4192	.5148	29.55
Fear of Success	-.2145	.3648	14.84
Role Definition/Prescription	-.0540	-.1175	1.54
Overprotection	-.0561	-.3064	10.47
			100.00

DESCRIPTIVE STATISTICS
FOR MECHANICAL/ELECTRICAL (54XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	143	9→63	25.7972	10.9535
Physical and Operational Job Standards (POJS)	147	10→70	33.7483	13.9293
Job Satisfaction (JS)	147	14→98	54.5646	15.3043
Competency (COMP)	145	10→70	38.2483	10.8048
Overprotection (OPRO)	146	11→77	33.2740	11.0675
Coworker Relations (CORE)	146	12→84	41.7808	11.4972
Fear of Success (FS_5)	139	0→104	62.6043	18.2882
Role Definition/Prescription (RD_7)	141	-60→+60	11.7305	7.5412

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FOR MEACHANICAL/ELECTRICAL (54XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.3272 (.001)§	+	.3839 (.001)	+	.4850 (.001)
Competency	-	-.5615 (.001)	+	.4107 (.001)	+	.5199 (.001)
Physical & Operational Job Standards	-	-.4759 (001)	+	.3862 (.001)	+	.3214 (.001)
Fear of Success	-	.2244 (.004)	+	-.0623 (.234)	+	-.1012 (.121)
Role Definition/ Prescription	-	.0569 (.251)	+	-.1053 (.108)	+	-.1544 (.036)

*N $\geq$ 135 for all correlations. The actual N varies from 135 to 147 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR MECHANICAL/ELECTRICAL (54XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.5898 (.001)†	.4137 (.001)	-.1187 (.082)	.0991 (.121)
Competency	. . . .	1.---	.6180 (.001)	-.0930 (.140)	.0469 (.292)
Overprotection	. . . .	. . . .	1.---	-.1494 (.040)	.0310 (.358)
Fear of Success	. . . .	. . . .	. . . .	1.---	.1673 (.026)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 135 for all correlations. The actual N varies from 135 to 146 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR MECHANICAL/ELECTRICAL (54XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.3878 (.001)†	1.----	. . . .
Coworker Relations	.4530 (.001)	-.3722 (.001)	1.----

*N $\geq$ 142 for all correlations. The actual N varies from 142 to 146 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR MECHANICAL/ELECTRICAL (54XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.7072	.5002	109.291	15	.000
2	.3329	.1108	18.79	8	.016

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATIONS FACTORS
FOR MECHANICAL/ELECTRICAL (54XXX)

Variables of Criterion and Predictor Set	Standardized Canonical Weights, or Canonical Coefficients	
	Canonical Variate Set 1	Canonical Variate Set 2
Predictor Set		
Supervisory Treatment	-.4546	.8409
Job Satisfaction	.5752	.9228
Coworker Relations	-.2403	.7136
Criterion Set		
Physical & Operational Job Standards	-.2516	-.6113
Competency	-.6961	-.2810
Overprotection	-.1385	1.0833
Fear of Success	.1160	.4512
Role Definition/ Prescription	.2238	-.3224

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OR SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR MECHANICAL/ELECTRICAL (54XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot VP$ or $\lambda \cdot VC$	Percent of Total Redundancy
		Predictor Set (Socialization Factors)			
1	.7072	.5002	.6068	.3044	92.66
2	.3329	.1108	.2175	.0241	7.34
				Σ=.3284	Σ=100.00
		Criterion Set (Stereotype Variables)			
1	.7072	.5002	.3907	.1954	91.35
2	.3329	.1108	.1670	.0185	8.65
				Σ=.2139	Σ=100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR MECHANICAL/ELECTRICAL (54XXX)

Canonical Variate Set #1

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Predictor Set			
Job Satisfaction	.5752	.6125	41.08
Supervisory Treatment	-.4546	.5650	34.96
Coworker Relations	-.2403	.4678	23.97
			100.00
Criterion Set			
Competency	-.6961	.6532	43.67
Physical & Operational Job Standards	-.2516	.5065	26.25
Fear of Success	.1160	.2112	4.56
Role Definition/Prescription	.2238	.1222	1.53
Overprotection	-.1385	.4842	23.99
			100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES FOR MECHANICAL/ELECTRICAL (54XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #2			
Predictor Set			
Job Satisfaction	.9228	.2661	97.94
Supervisory Treatment	.8409	.0370	1.89
Coworker Relations	.1736	-.0103	.17
			Σ=100.00
Criterion Set			
Competency	-.2810	.1393	20.97
Physical & Operational Job Standards	-.6113	.1916	39.70
Fear of Success	.4512	.1736	32.58
Role Definition/Prescription	-.3224	.0510	2.81
Overprotection	1.0833	.0604	3.94
			Σ=100.00

DESCRIPTIVE STATISTICS
FOR STRUCTURAL/PAVEMENT (55XXX)

Variable	Cases	Maximum Possible Range	Mean	Standard Deviation
Supervisory Treatment (ST)	96	9→63	28.5208	11.0406
Physical and Operational Job Standards (POJS)	97	10→70	27.5052	12.7305
Job Satisfaction (JS)	96	14→98	57.4375	13.5940
Competency (COMP)	95	10→70	34.5684	11.2880
Overprotection (OPRO)	97	11→77	33.3711	10.1009
Coworker Relations (CORE)	96	12→84	41.1042	10.5306
Fear of Success (FS_5)	87	0→104	66.5287	16.7525
Role Definition/Prescription (RD_7)	94	-60→+60	11.1489	8.1438

EXPECTED VS. ACTUAL PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN FACTORS OF SOCIALIZATION AND ROLE STEREOTYPES* FOR STRUCTURAL/PAVEMENT (55XXX)

Stereotypes	Socialization Factors					
	Job Satisfaction		Coworker Relations		Supervisory Treatment	
	Expected	Actual	Expected	Actual	Expected	Actual
Overprotectiveness	-†	-.2461 (.008)§	+	.2475 (.008)	+	.3175 (.001)
Competency	-	-.5085 (.001)	+	.2791 (.003)	+	.2887 (.002)
Physical & Operational Job Standards	-	-.3792 (.038)	+	.2501 (.007)	+	.2058 (.022)
Fear of Success	-	.2006	+	.0147 (.446)	+	.0618 (.286)
Role Definition/ Prescription	-	.1186 (.129)	+	-.2856 (.003)	+	-.0060 (.500)

*N ≥ 86 for all correlations. The actual N varies from 86 to 96 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†"+,-" indicates direction of expected correlations.

§() indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE STEREOTYPE VARIABLES (CRITERION SET)* FOR STRUCTURAL/PAVEMENT (55XXX)

	Physical & Operational Job Standards	Competency	Overprotection	Fear of Success	Role Definition/ Prescription
Physical & Operational Job Standards	1.---	.6499 (.001)†	.3549 (.001)	-.1333 (.109)	.0085 (.468)
Competency	. . . .	1.---	.3867 (.001)	-.2798 (.005)	.0551 (.301)
Overprotection	. . . .	. . . .	1.---	-.0144 (.447)	.1490 (.076)
Fear of Success	. . . .	. . . .	. . . .	1.---	-.0878 (.212)
Role Definition/ Prescription	. . . .	. . . .	. . . .	. . . .	1.---

*N $\geq$ 85 for all correlations. The actual N varies from 85 to 97 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation calculation.

†() Indicates level of significance.

PEARSON PRODUCT-MOMENT INTERCORRELATION MATRIX FOR THE SOCIALIZATION VARIABLES (PREDICTOR SET)* FOR STRUCTURAL/PAVEMENT (55XXX)

	Supervisory Treatment	Job Satisfaction	Coworker Relations
Supervisory Treatment	1.----	. . . .	. . . .
Job Satisfaction	-.4119 (.001)†	1.----	. . . .
Coworker Relations	.4146 (.001)	-.3587 (.001)	1.----

*N $\geq$ 95 for all correlations. The actual N varies from 95 to 95 due to missing data in the variables. A pairwise elimination process was used to eliminate cases with missing data from each correlation solution.

†() Indicates level of significance.

SIGNIFICANCE DATA FOR THE CANONICAL CORRELATION VARIATES:
RELATIONSHIPS BETWEEN ROLE STEREOTYPES
AND FACTORS OF SOCIALIZATION
FOR STRUCTURAL/PAVEMENT (55XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (Eigenvalue)	Chi Square	DF	Significance
1	.5844	.3415	96.632	15	.000

CANONICAL CORRELATION COEFFICIENTS FOR THE ROLE
STEREOTYPES AND SOCIALIZATIONS FACTORS
FOR STRUCTURAL/PAVEMENT (55XXX)

Variables of Criterion and Predictor Sets	Standardized Canonical Weights, or Canonical Coefficients
	Canonical Variate Set 1
Predictor Set	
Supervisory Treatment	.0635
Job Satisfaction	-.7281
Coworker Relations	.4269
Criterion Set	
Physical & Operational Job Standards	.1288
Competency	.6880
Overprotection	.2751
Fear of Succes	-.0576
Role Definition/ Prescription	-.4414

REDUNDANCY BETWEEN ROLE STEREOTYPES AND FACTORS OF SOCIALIZATION
EXPLAINED BY TWO CANONICAL VARIATE SETS
FOR STRUCTURAL/PAVEMENT (55XXX)

Canonical Variate Set	Canonical R	Canonical R^2 (or λ)	Variance Extracted (VP or VC)	Redundancy $\bar{R}^2$ $\lambda \cdot VP$ or $\lambda \cdot VC$	Percent of Total Redundancy
Predictor Set (Socialization Factors)					
1	.5844	.3415	.5759	.1967	100.00
Criterion Set (Stereotype Variables)					
1	.5844	.3415	.3372	.1152	100.00

CONTRIBUTIONS OF THE VARIABLES TO THE SIGNIFICANT CANONICAL RELATIONSHIPS BETWEEN FACTORS OF SOCILAIZATION AND ROLE STEREOTYPES FOR STRUCTURAL/PAVEMENT (55XXX)

Subcategory of the Primary Variable	Canonical Coefficient (weight)	Loadings (L)	Percentage ΣL^2
Canonical Variate Set #1			
Predictor Set			
Job Satisfaction	-.7281	.5552	52.24
Supervisory Treatment	.0635	.2998	15.23
Coworker Relations	.4269	.4381	32.53
			100.00
Criterion Set			
Competency	.6880	.5094	45.07
Physical & Operational Job Standards	.1288	.4039	28.32
Fear of Success	-.0576	.1556	4.20
Role Definition/Prescription	-.4414	.2137	7.93
Overprotection	.2751	.2887	14.48
			100.00

APPENDIX D

REPRESENTATIVE WRITTEN COMMENTS FROM SURVEY RESPONDEES

This appendix contains representative direct quotes from respondents who chose to identify any concerns about the survey instrument or Air Force life. Twenty-one percent of the respondees chose to make such comments, a relatively large number for this type of survey. Comments are included to provide some insight into the manner in which the respondees interpreted and reacted to this instrument investigating their social adaptation to the job. It should be noted that although some women indicate difficulties in interpreting questions relating to two of the stereotype variables measured with the survey instrument, the large majority of respondees were apparently able to interpret and respond appropriately to all questions.

Fear of Success

1. This survey is unclear as to directions. Were Y'all asking for two answers for the above questions 115-188 and numbers 15-18.

2. Also you ask questions about happiness between myself and a male coworker or unhappiness between myself and a male coworker. This is also an arbitrary situation. I can think of some coworkers who would be highly upset if they did not receive a promotion or a position of leadership, but there are others who do not care if they receive such a position. In some cases my ambition is stronger than theirs, in other cases the reverse is true.

3. I feel questions 15-18 and 115-118 are very unfair! How can you possibly compare a male coworker's feelings and my feelings! I don't know what he is thinking! Your questions suggest that either one or the other has to feel unhappy and the other has to be happy--can't they <u>both</u> feel happy or unhappy, depending on the situation.

4. 115 to 118 are so discriminatory male or female feels the same degree of happiness in getting selected for a position of responsibility, recognition and promotion. And disappointment vice versa. It depends upon the <u>individual regardless of sex</u>.

5. Questions 15 thru 28 and 115 thru 118 are not clearly justifiable for the reason that I feel that we will both react to the cause on the same level of feelings. You have both male and female which are elated when they receive certain recognition and others who just accept it as an every day happening. Depends on the situation and individual.

6. Questions such as 15-18 and 115-118 were impossible for me to answer. To suggest that <u>all</u> male coworkers would feel the same about promotion, etc. is idiotic. Also it is impossible for another person to say just how happy or unhappy any one male coworker is, let alone to say that they all feel the same. I would rather analyze each person as an individual rather than stereotype persons as male or female. I think Air Force policy agrees with me on this.

7. Questions 15-18 and 115-118 I could not answer because of the choices I was given. I believe both sexes would be just as unhappy in not being promoted or selected (question 15-18). Also both sexes would be just as happy being promoted. (questions 115-118). Male and female have the same emotions and drives the difference between the sexes is biological and not ideological I believe.

8. In reference to this survey I don't see any purpose for questions 15-18 and 115-118. I believe those questions are based more on the individual than on the sex of the individual.

9. 115-118 instructions should be more clear.

Role Definition/Prescription

1. I feel that asking questions like numbers 19-28 you are being unfair. What does ambitious, independent and competitive have to do with being masculine and feminine.

2. All these personality traits are neither masculine nor feminine, because these traits have nothing to do with the sex of individual. Both sexes exemplify all these traits. (It's like asking if the word "love" were a masculine or feminine trait)!

3. In reference to questions 19 thru 28, which deal with individual characteristics and their potential masculinity or femininity is very ambiguous. To stereotype personality traits through individual bias is a total absurdity. Any answers given would be only the biased opinion of one individual. They would be invalid even in a group comparison. I marked both extremes, masculine and feminine, as I have encountered many men and women with strong tendencies towards each trait. Women tend to be stereotyped emotional, as a result of extensive formal and informal training within the male and female role during childhood. General concensus would probably result in the finding that women are more emotional, submissive, gentle, and conceited, while men are more ambitious (in a career oriented form), independent, competitive, self-confident, tactful, and logical. No man, nor woman, with the ideology of the American dream, would want to deviate too far away from his/her interpretation of that dream.

5. This questionnaire asked for my attitude toward my male coworkers in general--in other words, to stereotype. I can no more give accurate answers to such questions than to consider myself a "typical female."

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