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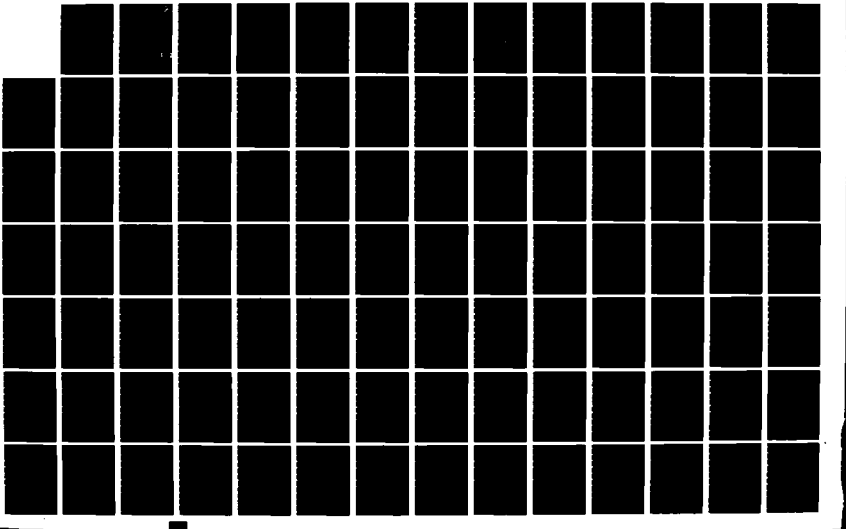

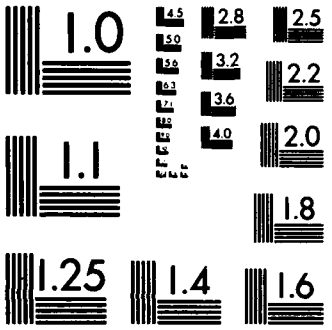

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AN ANALYSIS OF SUBORDINATES' PERCEPTIONS OF THE EFFECTIVENESS OF FEMALE SUPERVISORS IN THE AIR FORCE

Charlotte L. Rea, Captain, USAF

LSSR 82-83

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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This study addresses the possible impact of increasing numbers of female supervisors on military readiness. A literature review on female military and civilian supervisors found that few studies analyzed the actual performances of female supervisors and that many researchers no longer consider sex a primary indicator of managerial effectiveness. The two research questions posed addressing these issues were: (1) does sex of the manager effect perceived performance? and (2) do demographic characteristics of the female supervisor other than sex have an effect on perceived performance? The data base analyzed contained subordinate responses on the actual performances of their male and female supervisors. A two sample T-test found no significant difference between the perceived performance of male and female supervisors. A series of oneway analyses of variance found four factors--age, years in Air Force, officer rank, and career intentions--significantly effecting the perceived performance of female supervisors. A post facto analysis done on male supervisors found these four, and seven other factors not found for females, to be significant. This analysis also concluded that the supervisor's sex still plays at least a secondary role in perceived performance and that subordinates still use stereotypes in evaluating their supervisors.

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AN ANALYSIS OF SUBORDINATES' PERCEPTIONS OF THE EFFECTIVENESS OF FEMALE SUPERVISORS IN THE AIR FORCE

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

Charlotte L. Rea
Captain, USAF

September 1983

This thesis, written by

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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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CHAPTER I

INTRODUCTION

Following a decade filled with challenging personnel problems and unparalleled changes in personnel policy, the armed forces have turned to readiness as their major concern for the 1980s. The 1970s had truly been a turbulent time for personnel managers in the Air Force and her sister services. The Vietnam War ended, leaving the American public very disillusioned and dissatisfied with its military establishment. This dissatisfaction, along with the need for fewer military personnel at the conclusion of the war, gave rise to the All Volunteer Force in 1973. No longer could the military services rely on the draft for a steady supply of qualified male recruits. As a result, the services began to consider other personnel sources, including civilians and women. Retired Air Force Major General Jeanne Holm, in her book, Women in the Military, says that the end of the draft, "more than any other factor during the seventies, produced an expansion of woman's participation in the armed forces that was of unexpected and unprecedented proportions [24:246]." The passage of the Equal Rights Amendment (ERA) by Congress in 1972 also increased the role women were to play in the military and

in the success of the All Volunteer Force. Following the passage of the ERA, a special subcommittee was formed to study use of women in the military. The subcommittee emphasized the importance of women:

> We are concerned that the Department of Defense and each of the military services are guilty of 'tokenism' in the recruitment and utilization of women in the Armed Forces. We are convinced that in the atmosphere of a zero draft environment or an all-volunteer military force, women could and should play a more important role [24:249-250].

Thus, the stage was set for greater use of women in the military.

But to complicate the manpower issue even more, in the late 1970s officer and enlisted retention rates began to drop sharply, leaving the services with a severe shortage of skilled middle-managers. Recruiting was also down, as the manpower pool of qualified male recruits had begun to shrink drastically. This trend will continue until the end of the century, so that by 1992 the number of eligible eighteen-year-old males will have dropped by 20 percent (24:389). In 1979, the Air Force faced a shortfall of over 2,500 recruits, and the quantity of recruits with high school diplomas had dropped from 90 percent to 80 percent. The Army's quantity had dropped to 58 percent (17:130).

Faced with these serious manpower problems, it was not surprising that the services began to question their

readiness in the 1980s. They entered the new decade with an extremely young and inexperienced force with a greater percentage of women than ever before. In 1981, Air Force Lieutenant General Iosue, Deputy Chief of Staff for Manpower and Personnel, described the Air Force's concern. In the enlisted ranks, "we lost eight percent in total manpower of experience, or the equivalent of 4,000 E-5s or 2,400 E-6s." In the officer ranks, "we are about forty percent manned by lieutenants [42:37]."

Alarmed by these changes, the military services began to reevaluate their personnel policies, especially those with regard to women. Retired Air Force Major General Holm recounts:

> On 19 January 1981, the service Times reported that the Army and the Air Force had secretly submitted to the Reagan transition team in December a proposal that the female enlisted strength goals set by the Carter administration be scrapped until women's impact on force-readiness could be determined [24:382].

It seems strange that at a time when women seemed to be the salvation of the All Volunteer Force, their abilities to successfully participate in the military mission and contribute to military effectiveness were again being questioned. Secretary of Defense Casper Weinberger put the issue partially to rest in 1981 with a memo to the Service

Secretaries in which he stated:

> Women in the military are a very important part of our total force capability. Qualified women are essential to obtaining the numbers of quality people required to maintain the readiness of our forces. This Administration desires to increase the role of women in the military, and I expect the Service Secretaries to actively support that policy [5:49].

Statement of the Problem

Due to the increased numbers of women entering and middle-managers leaving the armed forces during the 1970s, more positions of increased responsibility fell open to women. Today, more military women serve as supervisors of mixed male and female units than ever before. This increased number of female supervisors in the military closely parallels the same increase of women managers in the civilian work force. Substantial research on women as managers has been conducted in the civilian community, much of which focuses on how women deal with the stress of working in a male-dominated environment in traditionally male positions. However, few conclusive studies exist on the effectiveness of women in such managerial positions. Much of the research on military women deals with their perceptions of military life and how effective they perceive themselves to be at their jobs. Other research focuses on how receptive and accepting male military

members are of their female co-workers. Little research has been done on how other military members view women as supervisors. This study focuses on this issue and investigates how male and female subordinates perceive the effectiveness of their female supervisors in the Air Force.

Background

Women have participated in the U.S. military since the Revolutionary War. They have served in every U.S. war. Prior to World War II, their participation was mostly as charwomen or nurses. But hundreds of other women, disguised as men, fought in actual battles. Others served as spies. The female nurses probably made the most significant contribution and certainly served in the greatest numbers. During the Spanish-American War, over 1,500 women served as nurses in the United States and overseas (24:8). Just prior to World War I, the Army and Navy formed auxiliary nursing corps, but these corps did not receive full military status until 1944.

During World War I, 34,000 women served in the armed forces as nurses, clerical workers, draftsmen, translators, radio electricians, and camouflage designers. They served in the U.S. and overseas in France, Belgium, England, Italy, Siberia, and Serbia (24:10). During this time, women also moved into the civilian work force in greater

numbers, working in shipyards, steel mills, and aircraft plants, as well as in traditional clerical positions. But, at the close of World War I, women in the military were demobilized, and most of the civilian women lost their wartime jobs to military men returning home. These women were not to serve again until World War II.

As World War II approached, faced with severe shortages of men, the military and civilian communities again turned to women as an alternative manpower source. By 1943, the Navy, Army, Coast Guard, and Marines had all established women's military units. In 1945, there were over 283,000 women serving in the armed forces of the U.S. (24:98). They served as nurses, pilots, clerical workers, navigators, parachute riggers, engine mechanics, and gunnery instructors (24:60). Like their male counterparts, they served in every major overseas theater, were captured as prisoners of war, and died while performing their military duties. Civilian women also served by moving into jobs normally filled by the men who were then fighting in the military. When military women were restricted from filling certain positions, especially overseas, civilian women were enthusiastically recruited to take their places.

After World War II, even though military leaders admitted women had performed admirably during the war, the women's units were again demobilized. Civilian women generally returned to their traditional jobs as wives and

mothers. It was not until 1948 that the Women's Armed Services Act was passed, establishing permanent roles for women in the Army, Navy, Air Force, and Marine Corps (24:113).

Although this act finally legitimized woman's role in the military, it also established some rather stringent controls on her participation. These controls included: (1) establishing a 2 percent limit on women serving in the regular component of each service; (2) allowing only one female colonel or Navy captain to serve in each service; (3) limiting the number of women who could serve as lieutenant colonels or Navy commanders in each service; (4) establishing separate promotion lists for women in all grades in the Army, Navy, and Marine Corps; (5) limiting the types of jobs women could hold; and (6) authorizing the Service Secretaries blanket authority to terminate the commission or enlistment of any female member (24:120).

These constraints on the use of women in the armed forces made it almost impossible for military women to acquire skills as supervisors and managers. If they were allowed to supervise at all, it was usually other women they supervised and in traditionally female jobs. They were not allowed to attend the service academies, the Reserved Officer Training (ROTC) programs, or senior professional military schools. The constraints held mainly because military men did not want to serve under

women. This factor was pointed out at the end of World War II by Army psychiatrists who found:

> In order for women to gain active participation in military activities, it was necessary for man to change his basic concept of the feminine role: to overcome his fear of "women generals" [24:195].

No matter how unfair or restrictive, these constraints held until the advent of the Vietnam War. Faced with severe male resistance to the draft, the U.S. had to reassess its military personnel policies. As a result, women in the military made some gains. In 1967 Congress lifted the grade ceilings for women officers and the 2 percent ceiling for women serving on active duty. The other restraints would have to wait, some until 1981, before social pressures outside the military began to precipitate changes.

After the Vietnam War, the All Volunteer Force was established, resulting in greater participation for women in the military. An All Volunteer Task Force was created which asked each service to develop contingency plans for greater use of women. The Army, Air Force, and Navy were told to plan for a 50 percent increase in their women's programs by 1977. By 1982 the services were expected to have 147,000 women in the ranks, or about 7 percent of the total force (24:249).

The All Volunteer Force was not the only factor responsible for greater use and participation of women in the military. The Civil Rights Act of 1964 and the Equal Rights Amendment passed by Congress in 1972 placed new emphasis on equal opportunity for women in both the civilian and military work force. Due, at least partially, to social pressures brought about by this legislation, officer commissioning programs, including the Air Force Officer Training School, Air Force Reserve Officers Training Corps, and the service academies were opened to women. Senior professional military schools were also opened to women for the first time. Nontraditional jobs such as pilot, missile maintenance officer and technician, navigator, security policeman, and aircraft mechanic were finally opened to women. At last women began to move into positions of increased responsibility where they could supervise both men and women in traditional and non-traditional jobs.

Women were making great strides in the civilian community during this same period. By 1979, 41.2 percent of the total labor force was comprised of women (53:547). Between 1970 and 1978, the proportion of women in managerial positions increased by 1.6 percent in contrast to 0.1 percent from 1950 to 1970 (53:549). White gives several factors causing the increase: the women's liberation movement which brought about changing views of

woman's role in society; federal legislation prohibiting sex discrimination, most important of which was the Civil Rights Act of 1964; the Affirmative Action Program of the Equal Opportunity Commission; and the increasing number of highly-educated women, with no young dependent children, entering the work force (53:549).

One important trend to note is, although civilian and military women were moving into managerial positions in greater numbers, these positions were at the lower levels of management. Moore says in 1977 it was estimated that in over half of U.S. companies women held less than 5 percent of the first level supervisory positions, and in three-fourths of U.S. companies they held 2 percent or less of the middle management jobs and none of the top level positions. She also reports that of the 2,500 key personnel directing major U.S. corporations in 1977 only sixteen were women (33:318). In the military from 1973 to 1979, although the number of women in the lower enlisted and officer ranks increased dramatically, the number of women in the senior enlisted and officer ranks actually decreased (28:2).

Women are still poorly represented in the senior enlisted and officer ranks. In the Air Force, for example, of the 338 general officers serving as of September 1982, only two were women. Similarly, only fourteen of the 4,749 Chief Master Sergeants in the Air Force are women. Women

hold only 3 percent of the field grade officer positions in the Air Force and less than .5 percent of the senior NCO positions (2:168).

As women moved into positions of greater responsibility in both the military and civilian work communities, their abilities as supervisors and managers came under close scrutiny. Researchers became very interested in the reasons for their successes and failures. Chapter II of this research effort documents the studies completed in this area. These studies are divided into two areas: (1) those analyzing sex stereotyping in the work force and its effect in predicting performance of female managers, and (2) those analyzing actual performances of female managers as perceived by the manager herself, her peers, supervisors, and subordinates. The review covers research done on female managers in both the civilian and military work environments.

Research Objectives

The objective of this research is to analyze the Organizational Assessment Package (OAP) data base provided by the Air Force Leadership and Management Development Center to determine first whether sex of the supervisor has an effect on the subordinate's perception of supervisory effectiveness, and second, whether various demographic

factors associated with the supervisor have an effect on these perceptions. These data will be analyzed and converted into usable information which should enable managers to better use women as supervisors in the Air Force and thus enhance organizational effectiveness.

Research Questions

In order to meet these research objectives, the following research questions were posed:

1. How effective are female supervisors compared to male supervisors in the Air Force as perceived by their subordinates?

2. Do factors such as the supervisor's age, rank, time in service, education level, race, and completion of professional military education affect the subordinate's perception of the effectiveness of female supervisors?

CHAPTER II

LITERATURE REVIEW

This literature review assesses the research accomplished on the role of women as managers in both the military and civilian communities. The literature can be divided into two areas: (1) the predicted performance of women as managers due to sex stereotypes at work in management climates, and (2) the actual job performance of women managers as perceived by themselves, their supervisors, subordinates, and peers. As might be expected, the two areas do overlap, but still provide an appropriate and logical breakdown of the literature.

Predicted Performance Due to Sex Stereotypes

Sex stereotyping exists throughout society and the work environment is no exception. Several research studies have shown sex stereotypes are used to predict the performance and color the expectations of women managers. Crittenden says, "the value programming or socialization process of individuals from early childhood has created attitudes that have helped shape the destiny of women in management [11:27]."

Sex stereotyping in the work environment may take several forms. Izraeli describes four major types as sex characteristic stereotyping, sex role stereotyping, sex labeling of occupations, and "sex value" stereotyping (26:54). The first two areas, sex characteristic stereotyping and sex role stereotyping, have received the most research attention and are sometimes confused.

Sex Characteristic Stereotypes

Sex characteristic stereotypes deal with personality traits commonly believed to be sex related. For example, by virtue of their sex, women are believed to be more emotional, less aggressive, less ambitious, and more irrational than men. Many of the traits believed to be necessary for good management are those attributed to males such as self-confidence, competitiveness, rationality, and aggressiveness. Sex role stereotypes, on the other hand, are "widely held beliefs concerning the appropriate behavior of men and women as individuals and in relation to others [26:54]." Women are expected by society to perform several roles such as wife and mother. With these roles come expected or normative behaviors such as dependency on and submissiveness to their husbands and sharing with and nurturing of their children. Sex role stereotypes describe what women should or should not do,

while sex characteristic stereotypes describe what women are. Research on these two forms of sex stereotyping have provided little conclusive evidence as to the true characteristics or roles of women in management. But research in this area is important since management traits have been those traditionally attributed to males, and the managerial role is one that historically has been reserved for men.

Studies have consistently reported that men and women both attribute good management to male attributes. White found that when male and female managers are asked to list traits attributable to successful managers they "list attitudes and temperaments more commonly ascribed to men in general than women in general," and they "tend to equate masculinity with superiority [53:552]." Moore and Rickel report that in a nationwide sample of male and female managers, the five most important characteristics given for managers were depicted by both male and female managers as male characteristics (33:320).

Three characteristics usually considered lacking in women but vital for good management are self-confidence, job commitment, and need for achievement. Considerable research has been performed on the presence or absence of these characteristics in women. White says the "most well-validated trait distinguishing female from male managers is self-confidence [53-552]." He believes the strongest indication that women are not confident in their own abilities

as managers is their adoption of the male stereotype as the true managerial model and their attempt to use these male traits in their own performances as managers (53:552).

Unlike self-confidence, the presence or absence of job commitment among women managers is not so clearly defined. Tied closely to the concept of job commitment is turnover and absenteeism. One of the justifications companies use for not hiring women or for paying them lower salaries than males is that they have less job commitment or career orientation than men and are thus less cost-effective. Chusmir found that "men and women are likely to exhibit the same degree of turnover, absenteeism, and/or job commitment given the same situation [9:595]." Hoiberg and Thomas found in a study of Navy enlisted women that they had substantially lower rates of absenteeism than men and that they remained in the Navy past their first-term reenlistment in almost equal proportions to men (22:24). They also found it was more cost-effective to enlist Navy women than Navy men. For each woman enlisted in place of a man in 1975, the Navy saved $853, for a total savings of $5,104,352 (22:24). Bartol and Manhardt studied 628 college graduates newly hired into an insurance firm over a nine-year period and found that women who had relatively high career orientations had lower rates of turnover than other men or women in the organization. By the later stages of the study, the job outcome preference of the men

and women had become almost the same (5:480).

Several studies have been done using longitudinal data collected by the National Opinion Research Center from 1961 to 1968 on women leaving college and entering the work force. Bielby used these data to assess the career involvement of these women over the period from 1961 to 1968. He found that situational factors such as marital status, number of children, spouse support, and education and salary level of spouse had the greatest effect on women's career involvement (6:19). Using these same data, Perrucci and Targ concluded that situational factors were more important than a woman's career orientation in deciding whether she remained in the work force (41:227).

Other studies using different data have shown similar results. Job commitment of women has been strongly and inversely related to sex-role conflict (9:559). Since women must often play the roles of mother and wife along with manager, the managerial role, being less accepted, is often given lower priority, thus impacting job commitment.

The studies performed on the need for achievement present among women managers have been inconclusive. White says this may be due to the fact that women do have a high need for achievement, but in areas not usually measured by theorists (53:558). In a study done by Okanes and Murray using fifty-one male and fifty-one female managers, they found the females had a higher need for achievement than

the males (39:785). Adams found in a study of male and female cadets at West Point that women and men with similar educational and career aspirations have the same need for achievement. He also found that personality characteristics of the leader had no effect on group performance (1:104). Other studies have shown that women in non-traditional jobs and in higher levels of management have a greater need for achievement than women in traditional or lower management positions (33:318).

The fact that the results of these studies on job commitment and need for achievement are inconclusive may be because these traits or characteristics are not innate or a function of sex but are highly dependent on situational variables and the roles in which women find themselves (48:659). Recent studies have argued that women managers may actually display or possess different characteristics than the general female population and "see themselves as more broad-minded, dominating, efficient, and independent than non-career women [53:562]."

Other researchers believe the presence or absence of these male characteristics in women managers is not really the issue since there are many traits attributed specifically to females that are just as important to good management. They feel that management should be androgynous. Cook and Mendelson say that androgyny is "the blending of so-called masculine and feminine behaviors

and values to produce a complete well-balanced person [10:29]." Cook used a national sample of male executives and a separate sample of female executives to compare their value systems. She found they shared a pragmatic orientation and the belief that values such as power, efficiency, growth, and achievement were very important. But she also found differences in their values. Men preferred more "brute-force" values such as force, competition, risk, and aggressiveness. Women preferred more "people-centered" values such as loyalty, cooperation, tolerance, and trust (10:33). Cook feels that androgyny provides the most socially responsible form of management.

Androgynous management is a relatively new concept and has not received widespread support or attention to date. Most male and female managers still adhere to the male managerial model. Since male traits are still commonly believed to be the best for management, sex characteristic stereotyping continues to be a factor in access and treatment discrimination of women managers (52:232). White says that women, when they fail to display stereotypic male characteristics and exhibit female characteristics contrary to the male managerial model, effect their managerial careers in several ways. He feels the most significant roadblock to their success is the perception that the good manager is one who exhibits male characteristics (52:229).

In a study on androgynous behavior and its acceptance by enlisted Navy personnel, Hinsdale and Johnson found that "androgyny might be more adaptive in theory than in practice [20:19]." For women this seemed particularly true since to advance their careers they had to display more masculine behaviors, but to satisfy their peers they had to assume the more traditional female role.

In a later study, they found some evidence that treatment discrimination may be lessening at least for subordinates if not for supervisors. In this study, they found that cross-sex or androgynous behavior was actually preferred or even encouraged by both peers and supervisors. The study, unfortunately, did not address the managerial behaviors preferred by subordinates or supervisors (21:15-16).

Sex Role Stereotypes

As previously stated, sex characteristic stereotypes and sex role stereotypes are often confused. This may be because male/female differences are related more closely to role than sex (53:553). The role of manager has traditionally been held by males in our society. When a woman steps into this role, she may suffer role stress in the form of role ambiguity or role conflict. Latack defines role ambiguity as "the degree to which information is lacking on

expectations, methods, and consequences of role performance [29:89]." Role conflict, on the other hand, results "when conflicting and competing expectancies are perceived from two or more roles enacted by an individual [23:86]." Women managers suffer from role conflict when they try to juggle the competing demands of roles as mother, wife, parent, and self. Using these four roles in a study of working women, Holahan and Gilbert found that women who perceived their work as a job rather than a career had greater role conflict. They also found that role conflict was contingent on such factors as spouse support, work commitment, and nature of the job (23:90).

Women managers are evaluated based on sex and position. The same is not true for male managers. This means that women can be out of role by sex and in role by position, in role by sex and out of role by position, out of role by sex and position, and in role by sex and position (48:650). The possibilities for role conflict, therefore, are much greater for women than men. When women do act contrary to their female role in order to perform competently on the job, they face the consequences of being disliked or excluded from their group (35:272).

The sex roles and expectations for women in management are normally based on their sex rather than their managerial abilities (8:122). Chacko found in his study on the effects of affirmative action programs on women that

women who thought they were hired because of their sex had less organizational commitment, less job, co-worker, and supervisor satisfaction, and more role conflict and ambiguity than those not selected due to their sex (8:119). Role ambiguity also occurs when women are given preferential treatment such as higher performance ratings than men performing equally. This may occur because a woman's performance as a manager is seen so out of role that it is given more value than an equal performance by a man (35:268-269).

Besides providing a source of role stress for women managers, sex role stereotypes have been used consistently to discriminate against women in both job selection and treatment (16:29). On their review of literature in this area, Nieva and Gutek found that (1) male applicants for managerial, scientific, and skilled positions were selected more often than equally qualified women; (2) men are rated more highly on job acceptability, service potential, and longevity than women; (3) women tend to be offered jobs at lower levels in the organization; (4) women are paid lower initial salaries than men doing the same jobs; and (5) male workers favor male supervisors (35:267-268).

In a study done for the Navy in 1978 to find the extent of racial and sexual discrimination among the ranks, it was found that "stereotypes or advancement inhibiting beliefs about women in the Navy" did exist. The study also

found that "virtually all men and the majority of white women would prefer to work for a man [36:15-16]."

Women also are discriminated against in promotion and training opportunities due to sex role stereotypes. Women are often banned from informal all-male groups within organizations and are excluded from mentoring systems, both of which hinder their chances for moving up in the organization (52:242). They may not receive the same training opportunities as men based on the perception that women have higher turnover rates, greater absenteeism, and less career commitment (9:595).

Stauder found similar results in the military environment. He says that for women to succeed in the military they have to overcome "the four behavioral systems that perpetuate organizational homogenity (sic) [46:14,17]." Organizational homogeneity implies that people, because of certain non-job related attributes such as sex, age, or race, are denied executive positions in an organization. The four behavioral systems he cites are visibility, property value, mentoring, and behavioral legal. Visibility is important since women must be perceived as being capable of success if they are to actually achieve success in an organization. Stauder says the lack of visibility women have traditionally had in the military is clearly evidenced by the reluctance of male military leaders to allow women to serve in general or flag officer positions.

Property value systems tend to assign women to lower level jobs with lower pay. The military is less discriminating in this area than the civilian community since it awards equal pay for equal rank. But, there may still be a tendency in the military to put women in lower quality or less demanding positions traditionally held by women. Mentoring systems also tend to discriminate against women in the military. This is due largely to the fact there are few women in senior enlisted and officer ranks to serve as mentors to junior service women, and men are hesitant to sponsor women. Stauder says discrimination by behavioral legal systems is less obvious but may be apparent in the Armed Services' attempt to limit the number of women in the military to a lesser percentage than in the national population (46:15,17).

Women managers suffer not only from discrimination in job selection, promotion, and training brought about by sex-role stereotyping, but also from the effects of role stress previously discussed. Role conflict and role ambiguity have been shown to lead to greater absenteeism, turnover, job dissatisfaction, anxiety, tension, distrust, and undesirable physiological symptoms such as high blood pressure (29:89). All these factors might negatively influence organizational effectiveness and job performance.

Sex Labeling of Occupations

The last two categories of sex stereotyping have received less research attention. They are sex labeling of occupations and sex value stereotyping. Sex labeling of occupations entails labeling an occupation as being either suitable for male or female jobholders. Nursing and teaching are two occupations traditionally labeled as female jobs. Manager and military leader, in contrast, are traditionally labeled as male occupations. Dowdell says males are more likely to view the military as a calling than are women due largely to social learning. Little girls do not usually grow up playing with guns, tanks, and submarines while aspiring to be soldiers. Little boys more commonly do (14:67).

Men and women tend to shy away from jobs labeled for the opposite sex. Izraeli says "the relationship between sex labeling and womens' absence from managerial roles is circular and reinforcing [26:55]." Since there are few women in management to serve as role models, fewer women go into management, and therefore management continues to be labeled as a male profession.

Bielby says occupations and professions in the United States have been highly segregated by sex and occupations held by women have lower status (6:7-8). Women have been slow to cross male job boundaries for several reasons.

These are: (1) individuals who hold positions out of their expected role are usually treated negatively; (2) employers have been hesitant to hire individuals applying for sex-incongruent jobs; and (3) individuals see sex-atypical jobs as having lower prestige (35:271-277). Limited access to educational programs such as medical and law schools have also kept women out of nontraditional career fields in the past. Women were often steered into traditional occupations such as nursing and teaching by career guidance counselors.

But, largely due to affirmative action programs, many of these sex-labeled job boundaries are becoming less well-defined. Women are moving into occupations once dominated by males but not without the problems brought about by sex characteristic and sex role stereotyping previously discussed.

The Army, in a study done on the use of women in nontraditional roles, found that women saw themselves as more capable soldiers than did the men. But, as a whole, both male and female Army personnel sampled upheld many of the traditional sex stereotypes. They felt men were more likely to make better commanders and could endure extreme weather and outdoor living better than women (43:104). Thomas reports that a study of Navy women found that working in nontraditional jobs did pose special problems for the women. Navy women in nontraditional jobs were

more likely to experience discrimination and have less satisfaction with supervisors and their careers, but they appeared to receive greater self-esteem than women in traditional jobs (49:36).

In the Air Force, the trend has been for women to change from nontraditional to traditional jobs at twice the rate of men (38:48). The Army has experienced similar trends but believes they might be due to the lack of female role models in the nontraditional areas. The administrative areas where women have traditionally worked in the Army have more senior women to act as role models. Nontraditional areas such as military police, which were only recently opened to women, have no senior enlisted women or female officers to serve as role models (38:50).

Research has also dealt with specific problems women face as they move into occupations previously held only by males. Izraeli reports several problems women executives in multi-national corporations (MNCs) have experienced. One of the most demanding roles a woman in an MNC might hold is expatriate manager. This job requires that the executive move every four or five years. This presents special problems for the woman since every time she moves she must reestablish her status in the organization and overcome any sex role stereotypes existing there (26:55). This is a problem women managers in the military must also face. Women in this job are also faced with the sex

stereotypes existing not only in the U.S., but within other countries they must deal with. Again female military managers who serve overseas might face similar problems especially if they supervise local national civilians or must work closely with the local civilian population.

As more women move into nontraditional professions, the boundaries to entry begin to weaken. Female lawyers and doctors and male nurses and secretaries, while not the norm, are still more common and accepted today than ever before. The practice of sex labeling of occupations will probably never completely disappear, but affirmative action programs have constrained it.

Sex Value Stereotyping

The last area affecting the ability of women to successfully perform as managers is sex value stereotyping. Sex value stereotyping occurs when female managers are judged ineffective based on their sex. Research has shown that sex value stereotyping does exist in our society. The results of some of these research studies are: (1) a group of college women valued the work of men more highly than identical work by women (52:231); (2) identical professional writings and paintings when attributed to female rather than male sources were rated lower; (3) male performance on a conceptual discrimination task was rated

more skillful than an equivalent female performance; and (4) females who reacted similarly to males in an emergency situation were rated less logical than their male counterparts (35:268). Other studies have shown that as more women enter a traditionally male profession the status of that profession declines (53:550).

Izraeli says that the implications of sex value stereotyping for women managers are far-reaching since individuals who have higher value have greater social status and thus more influence over others (26:55). Terborg agrees and says that the resistance toward women managers by their subordinates may not be due to the manager's sex but rather to her low status (48:656). Other researchers report that the problems of effective management are not due to sex but rather to the use of power (53:562).

Perceived Performance

To see if or to what extent stereotypes actually exist in the work environment, several research studies have examined the actual performances of women managers. The literature dealing with the actual performances of women managers as perceived by themselves, their peers, subordinates, and supervisors is difficult to organize or group. Research has been done in several individual areas,

but there are few areas where more than one research study has been done. Consequently it is difficult to draw any general conclusions from the literature.

Attribution Theory

One of the largest areas of study has been attribution theory. Attribution theory proposes that people attribute the successes or failures of others to factors either within or outside their control. Factors considered to be internal or within an individual's control are ability and effort. Factors considered to be external or outside one's control are luck and task difficulty (16:30).

Research has fairly consistently found that subordinates attribute successes of female managers to external factors and failures to internal factors. The reverse is true for the male manager. Garland and Price gave a questionnaire to 123 male undergraduates which asked them to describe the successes or failures of female managers described in the questionnaire. They found that males who had a positive attitude toward female managers attributed their successes to internal factors, whereas males who had more negative attitudes toward women managers attributed their successes to external factors. He did not find the same relationship to hold true for the failures of women managers (16:32).

Stevens and DeNisi replicated Garland's study, only they used both males and females as evaluators. They found the same results for the male evaluators as in the previous study. But female evaluators' attitudes about women as managers did not have a significant effect on the factors used to attribute successes or failures to the female managers (47:360).

Ayers-Nachamkin found in a study of Chicano and Anglo students participating as managers that the female Anglo students were more likely to attribute their managerial successes to external factors, while the male Anglo students attributed their managerial successes to internal factors. One interesting but unexplained finding in the study was that this same relationship did not hold true for the male and female Chicano students (3:469).

Other research has shown that: (1) when females were perceived to be successful at male-related tasks their successes were attributed to luck, whereas a male's success on the same task was attributed to ability; (2) performance on female-related tasks did not have the same causal attributions; (3) female successes in school situations were attributed to easy courses, but male successes were attributed to ability; and (4) unsuccessful performances of females in school situations were attributed to lack of ability, but male failures were attributed to difficult courses (35:271-272). These studies seem to support the

idea that sexual stereotypes do present problems for the female manager.

Other Studies

In addition to attribution theory, research efforts have dealt with such issues as the decision-making abilities of female managers, the differences between female managers in traditional and nontraditional jobs, the use of power by women managers, the effect of the subordinate's sex on the evaluation of the female manager, leadership styles of women managers, the effects of having been previously supervised by a female manager on the subordinate's perception of her competence, how the sex of the manager impacts the subordinate's exposure to organizational vulnerability, how widely accepted women are as managers by middle- and upper-level male executives, and whether women actually manage differently than men.

Managerial Decision-Making

While researching the decision-making profiles of male and female managers in the banking profession, Humphreys and Shrode found there were more similarities than differences. They did find several interesting differences. Women seem to least prefer the decisions they find most difficult to make, whereas men prefer the

most difficult decisions. Women find task decisions the most important, while men consider personnel decisions more important. The latter difference seems to contradict the widely held belief that women are more people-oriented and men more task-oriented (25:50-51).

In another study on managerial decision-making, Muldrow and Bayton compared the decision-making processes of 200 male and female executives in federal agencies on a particular task. They found the male and female executives did not significantly differ in their abilities to make right decisions. They did find women were more reluctant to take risks than men, and their perceptions of the managerial role were somewhat androgynous (34:102,104).

Traditional vs Nontraditional Jobs

Moore and Rickel studied the differences between female managers in traditional and nontraditional jobs. They compared women managers and non-managers in the traditionally female nursing career field to those in the less traditional business field. They found women in nontraditional business roles were more achievement- and production-oriented, saw themselves as possessing more male and managerial characteristics, considered the domestic role less important, and had fewer children than their counterparts in the more traditional nursing roles (33:317).

Use of Power

Several studies have been done on the use of power by women managers. Wiley and Eskilson gave a script to ninety-six experienced managers which described a male or female manager's use of power to persuade another individual to adopt their plan. Only 18 percent of the managers queried were women, which tends to limit the effectiveness of the study. But, the study found male persuaders were perceived to hold higher positions relative to their influence targets than were female persuaders, and women were more positively evaluated when they used reward rather than expert power while the reverse was true for males. Wiley and Eskilson feel this latter result should prove disturbing to female managers, since reward power is considered less reliable than expert power (54:673-675).

Ayers-Nachamkin found in a study of the sex and ethnic differences in the use of social power that there were more differences in the use of power between the two ethnic groups than between the groups differentiated by sex. She did find that:

> Males, presumably because of their greater familiarity and comfort with the public role of a powerholder in society, attempted to influence their subordinates to a greater degree than did females [3:469].

Lord "investigated the contributions of rater sex and personality to perceptions of emergent leadership, influence, and social power" in a study of ninety-six male and female undergraduates at the University of Akron. He found the characteristics of the raters had a large impact on their perceptions of the use of power, leadership, and influence (31:181).

Sex of the Rater

Several studies have found that the sex of the rater in particular has a significant effect on the evaluation of women managers. Wexley and Pulakos studied 286 manager-subordinate dyads comprising all four possible sex combinations to test Schmitt and Lappin's hypothesis that the greatest variance in performance ratings occurs when the rater and ratee are of the same sex. This should be due to the fact the rater should be more confident in his or her ratings when rating like individuals and thus, should use a wider range of the rating scale. The study did not substantiate the hypothesis. Instead, it found female subordinates displayed more variability when rating male supervisors than female, and female managers displayed more variable ratings for male subordinates than female subordinates. Wexley and Pulakos attribute the differences to the role ambiguity women experience in the work situation (51:433-437).

Shingledecker and Terborg found, contrary to other studies, that the sex of the manager and the subordinate do not have any effect on the subordinate's perception of the manager's effectiveness. This study dealt only with the area of performance appraisal. They found

> Male and female subordinates did not report favoritism, they did not differentially evaluate their own performance, and they did not differentially evaluate their supervisors as a function of whether their supervisor was a man or a woman [45:10].

They feel that sex stereotypes probably do not have as much impact in the work climate as once thought.

Leadership Styles

Another area that has been researched is the leadership styles of male and female managers. Jago and Vroom report the results of two studies they did on the different styles of leadership used by male and female managers. In the first study they used both male and female managers and male and female college students to determine the leadership styles of men and women. This study found both female undergraduates and managers had a more participative managerial style than their male counterparts. In their second study, male and female managers were asked to rate the participativeness of other managers in mixed-sex training groups. This study reported men and women who

were found to be participative were rated equally well, but women who were determined to be autocratic were rated negatively while autocratic males received positive ratings (27:776).

Butterfield and Powell did a study with 616 male and female students in an undergraduate business program to determine if group performance and sex of the manager or subordinate influenced reactions to leadership. They found performance rather than sex of the manager effected the perceptions of the manager's behavior, and male and female managers using the same leadership styles were judged equally. They also found the preferred leadership style was one high in both consideration and initiating structure (7:138).

In a study done at West Point, Rice found sex of the leader did have an effect on the perceptions of that leader's effectiveness. He performed a laboratory experiment using 288 first-year cadets who were divided into seventy-two groups, half with male leaders and half with female leaders. There were no female followers in any of the groups. The groups were asked to perform two tasks, one a drawing task, the other a proposal task. He found that: (1) groups with female leaders performed less effectively than those with male leaders; (2) male followers who had traditional attitudes towards women as managers rated their female leaders more negatively;

(3) the nature of the task, whether perceived as masculine or feminine, had an effect on how well the female leader was perceived; (4) male leaders were perceived to have more expertise, whereas female leaders were perceived to make greater contributions to the group process; and (5) followers attributed the performance of the male leaders more often to external factors such as task difficulty than the female leaders (44:65). Rice finds these results interesting since they show some sex bias, but not to the degree that might be expected in this setting at the time the study was done.

Effects of Prior Supervision by a Female Manager

Several studies have shown that prior supervision by a female manager has a positive effect on the subordinate's perceptions of the performance of female managers (15:292). One recent study was performed using male and female managers in state public welfare agencies. This study found subordinates who had been previously supervised by a woman felt more positively about the motivation of women managers. Men in the higher and lower entry level positions had the most positive attitudes about the motivation of women managers. The women respondents with the most positive attitudes were in the middle and lower management positions. The experience of having

been previously supervised by a woman did not effect the subordinate's perceptions of female managerial ability (15:295). Another study done in the Army showed that soldiers who had been supervised by members of the opposite sex had more positive attitudes toward women in the Army than those who had not (43:109).

Good did a study for the Navy looking at four areas pertinent to its use of women. The four areas were perceptions of men and women by men and women; attitudes toward members of the opposite sex within the work group; relationships between sex-typed characteristics, status, and leadership; and sex differences in stress among supervisors (18:29). She used forty-four male and female supervisors and 184 male and female subordinates from the Bell Telephone Company as her sample.

In the first area, she found men who have never worked with women are more likely to invoke sexual stereotypes, but women accept men as peers, subordinates, and supervisors from the start and readily accept androgynous behaviors of men and women. In the second area, she found that men who had never worked with women preferred to work for and with men, but men who have worked with women accept them more readily as peers, supervisors, and subordinates. Her findings in the third area support the idea that

managers should be androgynous. The study concluded that

> While supervision requires masculine traits, feminine characteristics--nurturance and supportiveness--are also perceived as descriptive of leaders by both followers and leaders [18:31].

The study also found female supervisors tend to experience more certainty and expect less conflict in supervisory roles than men, seemingly contradicting the idea that the role of manager presents a large amount of role conflict for women (18:30).

Disclosure of Information

Since the disclosure and transmission of information is extremely important in any organizational setting, Young studied what effect the sex of the manager would have on the willingness of the subordinate to disclose personal information important to the effectiveness of the organization. He used 120 male and female undergraduates to evaluate messages threatening to the subordinate but important to the function of the organization in both organic and mechanistic settings. He found individuals in an organic setting were more willing to disclose information, and they had more positive attitudes toward their leaders. He also found women tend to disclose more information than men. He did not find any effect of the sex of the supervisor on the willingness of the subordinate

to disclose information. Young says

> The lack of any sex-title effect may mean that female achievement and managerial role occupancy is now culturally accepted--at least in the undergraduate college population [56:120-121].

Acceptance of Female Managers by Male Managers

Another area studied is how widely accepted female managers are by male managers. To determine this, Baron and Abrahamsen evaluated approximately 8,000 questionnaires completed by middle- and top-level male executives in the United States. They found that 49.4 percent of the executives accepted women in nontraditional or managerial roles. They also divided the responses given into two categories, beliefs about the capabilities of women executives and opinions about the relationships between men and women in management. They then developed a four-quadrant matrix to depict the four types of male managerial attitudes existing at the time of the survey. The first is "True Acceptance." The manager with this attitude sincerely believes that female managers are just as capable as male managers in every way. The second type is "Doesn't Fit In." This male manager will never question the professional abilities of the female manager, but he will bar her entry into any formal all-male groups she may wish to enter. He will also make no effort to precipitate change in the organization

to make women feel more accepted. The third type is "Use 'em." This individual is hard to identify because he claims to believe women are equally competent, but in reality he does not think women are as professionally competent as men. He assigns dull, unimaginative tasks to female subordinates and plays the role of father, big brother, or protector. The last type, "Chauvinist American Male Pig," is the most identifiable. This individual believes women are incompetent and readily admits it. Baron and Abrahamsen caution that, although the matrix model is useful, it is only "a first step in identifying potentially successful male-female working relationships and, as such, must not be used as the final word on who is or is not a male chauvinist [4:48-53]."

Management by Men Compared to Management by Women

Donnell and Hall did an extensive study examining the way males and females manage. The study looked at five areas of managerial achievement including managerial philosophy, motivation dynamics, participative practices, interpersonal competence, and managerial style. For each area, male and female managers were matched according to type of organization, organizational rank, age, and number of people supervised. They found "women in general, do not differ from men, in general, in the ways in which they administer the management process [13:76]." They found

only two differences between male and female managers. Women had more achievement motivation than men, but men were more open and candid with their colleagues than were females. They conclude by saying that

> The disproportionately low numbers of women in management can no longer be explained away by the contention that women practice a different brand of management from that practiced by men [13:76].

Rand Report

One additional study was found which, although it did not specifically or solely address the issue of women in management, did provide insight into how well women supervisors are perceived in the military. This study was done by the Rand Corporation for the Department of Defense to provide a description of the officers and enlisted personnel in the U.S. Armed Forces. The data for the study was collected from a survey jointly designed and administered by the Rand Corporation and the Department of Defense (DOD). The survey was given to over 54,000 men and women in the four military services between 1978 and 1979 (12:1). One question on the survey asked the respondents whether they thought women could supervise as well as men. Twenty-eight percent of the enlisted males from the four military services either disagreed or strongly disagreed with the question while less than three percent of the female enlisted respondents disagreed (12:574). The

officer responses were extremely similar. Twenty-four percent of the male officers disagreed or strongly disagreed while only three percent of the female officers gave negative responses (12:579). The male Air Force enlisted personnel and officers gave the most favorable responses for women supervisors, while the Army personnel gave the least favorable responses (12:574-583). For the female respondents, the Marine enlisted personnel gave the least favorable responses, but the female Marine officers gave the most favorable responses (12:577,582). There was no way to tell from the study how many of the respondents had actually been supervised by a woman.

Conclusions

An apparent trend in all the literature is that, while sexual stereotypes do exist, attitudes toward women as managers are changing. As more and more men and women are supervised by female managers, the more they become accepted and the quicker the stereotypes begin to disappear. Many researchers feel that as more women move into management positions, more individuals will become aware of their abilities and will attribute their successes or failures to these abilities or lack of abilities and not to their sex. It may now be more appropriate to look at attributes, other than sex, to determine what makes a manager successful or not successful.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes how the research data was collected, how the research sample was determined, and what statistical procedures were used to analyze the data.

Data Collection

The Leadership and Management Development Center (LMDC) located at Maxwell AFB, Alabama was established in 1979 to study leadership and management problems existing in organizations throughout the Air Force. Their "ultimate goal is to enhance USAF combat effectiveness through increased motivation and productivity [30:1]." To help meet this goal, LMDC developed an Organizational Assessment Package (OAP) which is a survey used to assess management or supervisory problems that an organization might have. LMDC uses the OAP to provide management consultation services to Air Force organizations at their request. Once a request is made to LMDC, a Management Consultation Team is sent to the organization to administer the OAP to every member of the organization. The survey asks the members to answer certain demographic questions about themselves

and to respond to a series of questions about their work environment and their supervisors. After the results of the survey are collected and analyzed by LMDC, the Management Consultation Team returns to the organization to brief them on the results, to provide assistance to individual supervisors, and to conduct workshops and seminars as required. The OAP is also used "to provide a wide, varied, and creditable data base for research in the fields of leadership and management [40:1]." A complete copy of the OAP is provided in Appendix A.

The OAP consists of 109 questions that collect both demographic and attitudinal data from the respondent. The demographic data includes twenty-five items. The attitudinal data can be grouped to form twenty-seven factors. Twenty-four of the factors are statistical; three are non-statistical. A complete description of the factors and variables used in the OAP is provided in Appendix B. Each factor relates to corresponding questions on the survey which grouped provide a measurement for that factor. Responses to the questions are measured on a 1-to-7 fixed response scale. An answer of "1" to a question would indicate strong disagreement by the respondent; an answer of "7" would indicate strong agreement.

This survey has been previously validated. In 1979, prior to its formal use, Hendrix and Halverson used factor analysis to validate the first version of the OAP, which

included seventeen factors (19:15). The present version with twenty-seven factors was validated by LMDC (50:42).

The statistical factors in the OAP that this study investigated are management and supervision and supervisory communications climate. The first factor "measures support and guidance received and overall quality of supervision," while the second factor

> Measures the degree to which the worker perceives that there is good rapport with supervisors; that there is a good working environment, that innovation for task improvement is encouraged, and that rewards are based upon performance [3:2].

Each of these factors uses eight survey questions to measure the subordinate's attitudes towards his or her supervisor. The questions related to the management and supervision factor ask for the subordinate's perceptions of the supervisor's ability to plan effectively, set high performance standards, encourage team work, represent the group at all times, establish good work procedures, clearly define his or her responsibilities to the group member, and to perform well under pressure. Questions used to measure the supervisory communications climate factor ask the subordinates to rate their supervisors on whether they: (1) ask subordinates for ideas on task improvement; (2) explain how the subordinate's job contributes to the overall mission; (3) help the subordinate set specific goals; (4) let the subordinate know when he or she is

doing a good job; (5) help the subordinate improve his/her performance; (6) insure that the subordinate receives adequate training; (7) provide feedback that improves the subordinate's job performance; and (8) provide frequent feedback on the subordinate's job performance.

This study also analyzed one non-statistical factor measured by the OAP. This factor is supervisory assistance which "measures the extent to which a supervisor helps the subordinate [40:10]." Three survey questions are used to measure this factor. The questions ask the subordinates if their supervisor takes time to help them when needed; if the supervisor lets the subordinate know when he is performing poorly; and if the subordinates need technical advice do they usually consult their supervisor.

These three factors were used to measure the subordinate's perception of his or her supervisor's effectiveness. They served as the criterion or dependent variable and were measured as interval level data. The data analysis also included certain demographic factors collected by the survey including sex, race, age, pay grade, time in service, time in present position, highest education level obtained, highest level of professional military education completed, number of people supervised, how often the supervisor holds group meetings, and how often group meetings are used to establish goals and solve problems. Several of these demographic factors,

described later in this chapter, were chosen to analyze their moderating effect on the subordinate's perception of supervisory effectiveness. They were used as endogenous or independent variables.

Sample Population

This study considered all supervisors serving in the active duty Air Force from 1980 to 1982 as its population. A supervisor is being defined here as any individual who has at least one other person directly reporting to him/her. The sample population studied included all supervisors surveyed by LMDC using the OAP from 1980 to 1982. This sample population included approximately 10,000 active duty supervisors from ninety-three bases and nineteen major commands or special operating agencies. It is comprised of approximately 8,700 male and 700 female, enlisted, officer, and civilian supervisors.

Data Analysis

This section describes the statistical analysis used to analyze the data needed to answer the two research questions posed in the first chapter of this thesis.

In order to answer research question one, the three factors on the OAP dealing with management and supervision, supervisory communications climate, and supervisory assistance were used to measure the subordinate's perceptions of

his/her supervisor's effectiveness. The responses for male supervisors were compared to those of female supervisors using a large sample test for the difference between two population means.

This statistical test assumes that the data are randomly selected in an independent manner from the two populations, the two populations being all active duty female supervisors and all active duty male supervisors in the Air Force. It also assumes that both sample sizes are large enough to have approximately normal sampling distributions and for the sample variances to provide good approximations for the population variances (32:328). Since any sample size over thirty is considered sufficiently large, my samples met this assumption. Since this is a parametric test, it also assumes that the data is at least interval level. This assumption was also met.

The SPSS subprogram T-Test, using independent samples, was used to compare the mean responses for male and female supervisors on each of the nineteen questions and two statistical factors to see if they were significantly different. The significance level was set at alpha equal to .05. The pooled variance t-value was used for all tests since the F-Test for equal population variances showed the population variances to be equal in all cases tested. The results of each test were used to determine if there was a significant difference between the perceived

effectiveness of male and female supervisors.

For research question two, the same questions and factors were used as dependent variables, but analysis of variance was used as the statistical method for analysis. The sample population was limited to female supervisors for this analysis. Selected demographic factors of the female supervisor were used as independent variables.

There was little research found addressing demographic characteristics of the supervisor and their effects on the perception of the supervisor's effectiveness by her subordinates. Two areas that received some attention in the literature were job commitment and race. Therefore, the OAP variables for ethnic background and career intentions were selected for analysis.

Three other areas not found in the research review but which seemed logical for analysis were the supervisor's experience, position in the organization, and education level. In the first area, supervisor's experience, there were four demographic variables examined. These were the supervisor's age, total years in the Air Force, total months in position, and total months in career field. To determine the effect of the supervisor's educational background on her perceived effectiveness, two demographic variables were selected for analysis. These were the professional military education (PME) completed by the supervisor and the highest level of civilian education

completed by the supervisor. The effect of the supervisor's position in the organization was analyzed using the supervisor's rank and her personnel status whether enlisted, civilian, or officer.

To use analysis of variance, certain assumptions must be met. The dependent variable must be at least interval level. Also, the population distributions must be normally distributed with equal variances and the samples should be randomly and independently selected (32:634). These assumptions were met.

The analysis of variance was performed using the SPSS subcommand ONEWAY for each demographic variable selected. The significance level was set at alpha equal to .05. The SPSS procedure ONEWAY was used instead of ANOVA since there was no evidence in the literature researched to suggest that there might be interactions between the selected demographic variables. The results of each analysis of variance were used to determine whether that demographic factor had an effect on the perceived effectiveness of the female supervisor. To make multiple comparisons among the subsets, the Duncan's multiple range test was used. This test was used since it is more powerful than other multiple range tests available in SPSS (55:198).

CHAPTER IV

RESULTS

This chapter describes the results of the data analyses outlined in the preceding chapter. These analyses were performed to answer the two research questions posed in Chapter 1: (1) How effective are female supervisors compared to male supervisors in the Air Force as perceived by their subordinates? and (2) Do factors such as the supervisor's age, rank, time in service, educational level, race, and completion of professional military education affect the subordinate's perception of the effectiveness of the female supervisor?

The chapter is divided into three sections. The first two sections give the results of the analyses used to answer the two research questions. The third section describes and gives the results of a post facto analysis done on male supervisors using the same methodology and supervisory demographics used for the female supervisors in answering research question two.

Research Question One

To determine whether subordinates perceived female supervisors in the Air Force to be as effective

as male supervisors in the Air Force, the mean subordinate responses for the male and female supervisors were compared on the two statistical factors, one non-statistical factor, and the nineteen individual questions comprising these factors. The three factors and nineteen questions are listed in Table 4-1. Table 4-2 provides the test results.

For the two statistical factors, no significant difference was found between male and female supervisors. One question used to determine the statistical factor, management and supervision, was found to be significant. Female supervisors were rated significantly lower than males on their ability to handle pressure. For the non-statistical factor, supervisory assistance, one of the three questions was found to be significant. Subordinates rated female supervisors significantly higher than males on the statement--When I need technical advice I usually go to my supervisor.

Since both statistical factors were found to be non-significant and only two of the nineteen questions were found to be significant, the results of the analysis for the first research question indicate that subordinates do not perceive any significant difference between the effectiveness of male and female supervisors in the Air Force.

TABLE 4-1

Analysis of Factors and Variables

FACTOR 818 - MANAGEMENT AND SUPERVISION: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
404	58	My supervisor is a good planner.
405	59	My supervisor sets high performance standards.
410	60	My supervisor encourages teamwork.
411	61	My supervisor represents the group at all times.
412	62	My supervisor establishes good work procedures.
413	63	My supervisor has made his responsibilities clear to the group.
445	64	My supervisor fully explains procedures to each group member.
416	65	My supervisor performs well under pressure.

FACTOR 819 - SUPERVISORY COMMUNICATIONS CLIMATE: Measures the degree to which the worker perceives that there is good rapport with supervisors: that there is a good working environment; that innovation for task improvement is encouraged, and that rewards are based upon performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
426	67	My supervisor asks members for their ideas on task improvements.
428	68	My supervisor explains how my job contributes to the overall mission.
431	69	My supervisor helps me set specific goals.
433	70	My supervisor lets me know when I am doing a good job.
435	72	My supervisor always helps me improve my performance.
436	73	My supervisor insures that I get job related training when needed.
437	74	My job performance has improved due to feedback received from my supervisor.
442	76	My supervisor frequently gives me feedback on how well I am doing my job.

SUPERVISORY ASSISTANCE (NOT A STATISTICAL FACTOR): Measures the extent to which a supervisor helps the subordinate.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
424	66	My supervisor takes time to help me when needed.
434	71	My supervisor lets me know when I am doing a poor job.
439	75	When I need technical advice, I usually go to my supervisor.

TABLE 4-2

Comparison of Means for Male and Female Supervisors

Variable	Females		Males		2-Tail Probability
	Number of Cases	Mean	Number of Cases	Mean	
Z818	693	5.0081	8580	5.0024	0.906
Z404	708	4.9022	8683	4.8911	0.841
Z405	710	5.2911	8687	5.2504	0.419
Z410	708	5.1217	8674	5.1754	0.314
Z411	705	4.8694	8671	4.8912	0.706
Z412	708	4.9236	8682	4.8863	0.481
Z413	702	5.0050	8676	5.0242	0.720
Z445	705	4.7712	8660	4.7194	0.344
Z416	709	4.9488	8676	5.0969	0.010*
Z819	701	4.6842	8593	4.6274	0.293
Z426	710	5.1389	8679	5.0823	0.306
Z428	707	4.5939	8675	4.6303	0.504
Z431	709	4.3379	8682	4.3228	0.781
Z433	709	4.8978	8688	4.8001	0.085
Z435	709	4.5808	8678	4.5536	0.606
Z436	707	4.7438	8659	4.7112	0.541
Z437	706	4.4815	8679	4.4424	0.488
Z442	709	4.5089	8681	4.4283	0.149
Z424	709	5.4863	8684	5.4680	0.720
Z434	706	5.3761	8673	5.3649	0.811
Z439	709	4.7553	8675	4.5860	0.005*

* significant at alpha equal to .05

Research Question Two

To determine what effect certain demographic characteristics of the female supervisor might have on her effectiveness as perceived by her subordinates, oneway analysis of variance was performed using the same nineteen questions and three factors used in answering the first research question. The demographic variables used, as discussed in the preceding chapter, were age, months in present position, years in the Air Force, months in career field, personnel category (officer, enlisted, or civilian), rank, professional military education (PME), educational level, career intentions, and ethnic background. For each demographic variable, the analysis of variance determined whether that demographic characteristic had a significant effect on the perceived effectiveness of the supervisor, and if one or more subsets of that demographic variable was significantly different from the others. The results for the ten demographic variables follow. Tabular results are contained in Appendix C.

Age

The first four demographic variables analyzed deal with the experience of the supervisor. They are age, months in position, years in Air Force, and months in career field. The first of these analyzed was age.

The approximately 700 female supervisors in the sample comprised seven different age groups measured by years. The age groups were: (1) eighteen to twenty-five; (2) twenty-six to thirty; (3) thirty-one to thirty-five; (4) thirty-six to forty; (5) forty-one to forty-five; (6) forty-six to fifty; and (7) fifty-one or older. The cell sizes for the test ranged from 52 in the forty-one to forty-five age group to 163 in the twenty-six to thirty age group.

The results of the analysis of variance showed that age did have a significant effect on the two statistical factors and on thirteen of the sixteen questions used to determine these factors. Two of the three questions used in the non-statistical factor were also significantly affected by the age of the supervisor. The Duncan's multiple range test showed that there was more than one significant subset for all the variables analyzed. Although the subsets varied for each variable, the general trend was that supervisors in the younger age groups scored significantly lower than those in the older age groups. The eighteen to twenty-five and twenty-six to thirty age groups scored significantly lower than the thirty-one to thirty-five and thirty-six to forty age groups on all of the tests.

Thus, the results suggest that age of the supervisor does have a very significant effect on how well that super-

visor is perceived by her subordinates. The analysis also indicates that older supervisors are perceived as being more effective than younger supervisors.

Months in Position

This demographic variable was divided into seven groups: (1) less than one month; (2) one to six months; (3) six to twelve months; (4) twelve to eighteen months; (5) eighteen to twenty-four months; (6) twenty-four to thirty-six months; and (7) greater than thirty-six months. The smallest group was the less than one month group containing approximately twenty supervisors. The largest group was the greater than thirty-six months group which contained approximately 159 female supervisors.

Months in position was not found to have a significant effect on either of the statistical variables. Only two of the sixteen questions comprising the two statistical factors were found to be significant. Months in position did have a significant effect on the supervisor's ability to explain how the subordinate's job contributed to the overall mission and on the supervisor's ability to make her responsibilities clear to the group.

Two of the three questions comprising the non-statistical factor were found to be significantly effected by the supervisor's months in position. Months in position

had a significant effect on the supervisor's willingness to take time to help subordinates and to let them know when they were doing a poor job.

The Duncan's multiple range test found more than one significant subset for months in position for both of the statistical factors and seven of the nineteen questions. The general trend was for supervisors with the least time in position to be rated lower than those with the most time in position. In all the tests, the six to twelve months group scored significantly lower than the greater than thirty-six months group.

The results of this analysis are not as clear cut as that for age. The supervisor's months in position does not appear to be as significant a factor as age of the supervisor. When months in position does appear to be significant, supervisors with the greatest time in position are perceived to be more effective than those with the least time in position.

Years in Air Force

The third demographic variable, years in Air Force, was comprised of four groups. These groups were less than four years; four to eight years; eight to twelve years; and greater than twelve years. The sample included approximately 650 female supervisors spread almost equally among the four year-groups.

Years in Air Force was found to have a significant effect on both statistical factors, including fifteen of the sixteen questions used to determine these factors. Two of the three non-statistical questions were also found to be significantly effected by the supervisor's time in the Air Force. The multiple range tests found more than one significant subset for both statistical factors and seventeen of the nineteen questions analyzed. The subsets varied somewhat for each variable, but the general trend was for the supervisors with the lesser time in the Air Force to be perceived as less effective than those with the greater time in the Air Force. In almost all cases, supervisors with less than eight years in the Air Force scored significantly lower than supervisors with greater than eight years in the Air Force.

The results of this analysis show that the supervisor's time in the Air Force does have a very significant effect on how her subordinates perceive her effectiveness. Female supervisors with more time in the Air Force are perceived to be more effective than female supervisors with less time in the Air Force.

Months in Career Field

The fourth demographic variable analyzed was months in career field. This variable was comprised of three

groups: (1) less than eighteen months; (2) eighteen to thirty-six months; and (3) greater than thirty-six months. The number of supervisors in the sample ranged from approximately sixty in the less than eighteen months group to approximately 575 in the greater than thirty-six months group.

Neither of the statistical factors was found to be significantly affected by this variable. Only one of the nineteen questions was found to be significantly effected. Months in career field did have a significant effect on the subordinate's willingness to consult the supervisor for technical advice.

The multiple range tests found more than one significant subset for this variable for only three of the nineteen questions. For the one question that was found to be significantly affected by months in career field, supervisors in the two groups with the lesser time in career field were rated significantly less effective than those in the group with the greatest time in career field. For the other two questions where the global F-Test was not significant, but the Duncan's multiple range test was significant, the eighteen to thirty-six months group scored significantly lower than the greater than thirty-six months group.

The results of this analysis indicate that the supervisor's number of months in her career field seems to

have almost no effect on how well she is perceived by her subordinates. The multiple range test was significant in too few cases to draw any strong conclusions about which subsets are perceived to be most effective.

For the four variables dealing with the experience of the supervisor, two--age and years in Air Force--were found to be highly significant, and two--months in position and months in career field--were found to have very little significance on the perceived effectiveness of female supervisors.

Personnel Category

The next two variables analyzed deal with the status of the supervisor in the organization. These two variables are personnel category and rank. The first variable analyzed was personnel category. This variable was comprised of three groups--officer, enlisted, and civilian supervisors. There were approximately 200 officer, 200 enlisted, and 300 civilian supervisors in the sample.

Neither of the two statistical factors was found to be significantly affected by the personnel category of the supervisor. Seven of the sixteen questions comprising these two factors were found to be significantly affected. Only one of the three non-statistical questions was significantly affected.

The multiple range test was significant for one of the statistical factors and eleven of the nineteen questions. The results were somewhat varied. In half of the cases, enlisted personnel scored significantly lower than civilians. In one-third of the cases, officers scored significantly lower than civilians. In the other two cases, enlisted supervisors scored lower than officers. The general trend was for civilians to have the highest ratings and enlisted personnel the lowest.

The results of this analysis showed that the personnel category of the supervisor had some effect on the subordinate's perception of the effectiveness of the supervisor, but that the effects were not highly significant and were somewhat mixed as evidenced by the multiple range tests. In those cases where the multiple range test was significant, the general trend was for enlisted supervisors to score significantly lower than civilian supervisors.

Rank

To determine the effect of rank of the supervisor on perceived effectiveness, the three personnel categories were separately analyzed by pay grade.

Enlisted Supervisors. For the first category, enlisted rank, the variable was divided into three groups--E-1 through E-4; E-5; and E-6 through E-9. The first and

last group contained approximately thirty-five supervisors; the E-5 group contained approximately 120 supervisors.

Enlisted rank had no significant effect on any of the statistical factors or nineteen questions. The multiple range tests also found no cases where there was more than one significant subset for enlisted rank.

Officer Supervisors. Officer supervisors were divided by rank into three groups for analysis. The groups were lieutenants, captains, and field grade officers. There were approximately ninety lieutenants, seventy captains, and forty field grade officers in the sample.

Officer rank had a significant effect on both statistical factors and seventeen of the nineteen questions analyzed. The two questions that were not significantly effected both dealt with the supervisor's willingness to let the subordinate know when he was doing a good or poor job.

The multiple range tests found more than one significant subset of officer rank for all except one variable analyzed. In all cases, lieutenants scored significantly lower than captains or field grade officers. In one-fourth of the cases, captains scored significantly higher than lieutenants, and in the remaining cases, field grade officers scored significantly higher than lieutenants. Captains scored significantly higher on questions related to the statistical factor, supervisory communications

climate. Field grade officers scored significantly higher on those questions relating to the management and supervision factor.

These results indicate that the rank of the officer supervisor does have a very significant effect on how effective she is perceived to be by her subordinates. Lieutenants are perceived as being less effective supervisors in all cases. Captains are seen to be more effective communicators, and field grade officers the more effective managers.

Civilian Supervisors. To analyze the effect of rank of civilian supervisors, the civilian sample was divided into three groups: GS-8 and lower; GS-9 to GS-12; and greater than GS-12. There were approximately 100 civilian supervisors in the first two groups, and thirty in the third group.

Rank of the civilian supervisor was found to have no significant effect on any of the statistical factors or questions analyzed. The multiple range tests also found no significant results.

For the two variables dealing with the status of the supervisor in the organization, the results were mixed. Personnel category had a slightly significant effect on the perceived effectiveness of the supervisor, with enlisted personnel generally being rated less effective than civilians. Rank was found to be totally non-significant

for enlisted and civilian supervisors but highly significant for officer supervisors. Lieutenants were found to be the least effective supervisors; captains the better communicators; and field grade officers the better managers.

Professional Military Education

The next two variables analyzed dealt with the educational background of the supervisor. Professional military education (PME) and educational level were the two variables examined. The level of PME completed by the supervisor was divided into eight groups. The groups were: none completed; Phase 1 and Phase 2; Phase 3; Phase 4; Senior NCO Academy; Squadron Officer School; Intermediate Service School; and Senior Service School. The first four, after none completed, are all enlisted PME. The last three categories deal only with officer PME. There were no female supervisors who had completed the Senior NCO Academy, so this category was eliminated. The number of supervisors in the other categories ranged from fourteen in the Senior Service School to 380 in the none completed category.

PME had no effect on either of the statistical variables. Only three of the nineteen questions analyzed were found to be significantly effected by PME. PME did seem to have an effect on the supervisor's ability to plan, to set

high performance standards, and to explain to subordinates how their jobs related to the overall mission.

The multiple range tests found more than one significant subset for PME in three of the questions just discussed and for one additional question. The additional question dealt with the supervisor's willingness to provide job-related training for subordinates. The subsets varied considerably for each question. In three of the four cases where there was more than one significant subset, supervisors completing intermediate service schools were rated most effective. In the other case, supervisors completing senior service schools were found to be the most effective at setting high performance standards. In three of the four cases, supervisors who had completed Phase 3 training were found to be the least effective supervisors. The one exception was that supervisors with no PME were found least effective in insuring their subordinates received job-related training.

The results, then, of this analysis showed PME to have almost no significant effect on how effective the supervisor is perceived to be by her subordinates. The multiple range tests were also significant in too few cases to draw any general conclusions about the effect of PME on the supervisor's perceived effectiveness.

Educational Level

The educational level of the supervisor was divided into six categories. They were: did not complete high school; high school graduate; completed less than two years of college; completed more than two years of college; bachelors degree completed; and masters degree or doctorate completed. The number of supervisors in each group ranged from seventeen in the group who did not complete high school to 185 in the group with bachelors degrees.

Educational level was found to have no effect on either of the statistical factors and fourteen of the nineteen questions. Four of the five questions that were found to be significantly effected were concerned with the statistical factor, supervisory communications climate.

The multiple range tests found more than one significant subset for ten of the nineteen questions and for one statistical factor. In all but two cases, supervisors with masters degrees or doctorates were rated most effective. The two exceptions were that supervisors without a high school diploma were rated more effective than supervisors with a bachelors degree on their willingness to let subordinates know they are doing a poor job, and supervisors with only a high school education were rated more highly on their ability to provide technical advice than supervisors with a bachelors degree. The

results for the least effective supervisors were mixed, although in nine of the eleven cases, supervisors with bachelors degrees were ranked in the subset with the lowest scores.

Educational level and PME, then, were found to have very little effect on how well the female supervisor was perceived by her subordinates. Multiple range tests were significant in too few cases to draw any general conclusions for either PME or educational level.

Career Intentions

The last two variables examined were career intentions and ethnic background. Career intentions of the supervisor were divided into six groups: (1) plan to retire in next twelve months; (2) plan the Air Force as a career; (3) likely to remain in the Air Force as a career; (4) may stay in the Air Force; (5) will probably not make the Air Force a career; and (6) will separate as soon as possible. The number of supervisors in each group ranged from only twenty-two supervisors planning retirement to almost 300 planning to make the Air Force a career.

The career intentions of the supervisor were found to be significant for both statistical factors and fifteen of the nineteen questions analyzed. The management and supervision factor and all eight of the questions pertaining to it were found to be significantly effected

by the supervisor's career intentions.

The multiple range tests also found highly significant effects of career intentions. More than one significant subset was found for all but two questions. In all cases where there was more than one significant subset, supervisors planning to make the Air Force a career were ranked in the subset with the highest scores while supervisors planning probably not to make the Air Force a career were ranked in the subset with the lowest mean scores.

The results indicate that the career intentions of the supervisor have a highly significant effect on how effective she is perceived to be by her subordinates. The general trend seems to be that supervisors planning to make the Air Force a career are perceived to be more effective than supervisors who probably will not make it a career.

Ethnic Background

The last demographic variable analyzed was ethnic background of the supervisor. This variable was divided into five groups--Indian, Asian, black, Hispanic, and white. Results from this test may be somewhat questionable due to the small cell sizes in some of the subgroups. There were only six Indian, seven Asian, and twenty-three Hispanic supervisors in the survey. There were

approximately seventy black and over 550 white supervisors in the sample.

Ethnic background of the supervisor was not found to be significant for either statistical factor. It was found to have a significant effect on only four questions, two of them from the non-statistical factor, supervisory assistance.

The multiple range tests found only one case that was significant. Black supervisors were perceived to be less effective in explaining how the subordinate's job related to the overall mission than white supervisors.

The results of the analysis indicate that ethnic background of the female supervisor has almost no effect on her perceived effectiveness. The multiple range tests also provided no significant results.

Summary

The analysis for research question two showed that certain demographic characteristics of the supervisor do have an effect on how well the supervisor is perceived by her subordinates. Three of the ten demographic variables selected for study were found to be highly significant. These were age, years in Air Force, and career intentions. Supervisors who were older, had more time in the Air Force, and planned to make the Air Force a career were judged more effective by their subordinates.

Rank was found to be highly significant for officers, but completely non-significant for civilians and enlisted personnel. Lieutenants were found to be the least effective supervisors; captains the better communicators; and field grade officers the better managers. Ethnic background, educational level, PME, months in position, and personnel category were found to have little effect, although civilian supervisors were judged more effective than enlisted supervisors in most cases.

Post Facto Analysis

The analysis performed for research question one showed that subordinates found female supervisors to be just as effective as male supervisors. The analysis for research question two identified certain demographic factors, other than sex of the supervisor, that had an effect on the supervisor's perceived effectiveness. Once these analyses were performed, it seemed only logical to do a post facto analysis to see if the ten demographic variables had the same effect for male supervisors as for female supervisors. This analysis for male supervisors employed the same methodology used for female supervisors in answering research question two. The demographic variables were divided into the same subgroups used for female supervisors. The results of the post facto analysis are contained in Appendix C.

The results for each of the ten demographic variables for male supervisors and a comparison of these results to those found for female supervisors follow.

Age

The sample sizes for the age subgroups ranged from 550 in the oldest category to almost 2,200 in the thirty-six to forty category. Age of male supervisors was found to be significant for both statistical factors, and for all three questions comprising the non-statistical factor. Fifteen of the nineteen questions were significantly effected by the age of the supervisor. These results were extremely similar to those found for female supervisors.

The multiple range tests for male supervisors also found similar results. In almost all cases, male supervisors, like female supervisors, were found to be more effective when older, especially in the thirty-six to fifty age groups. The two exceptions were that older male supervisors were rated lower than younger supervisors on their willingness to tell subordinates when they were doing a poor job, and on their tendency to be sought by subordinates for technical advice.

Months in Position

The sample sizes for the months in position subgroups ranged from 900 in the eighteen to twenty-four category to

1,865 in the six to twelve category. This variable was found to be more significant for male supervisors than female supervisors. The statistical factor, supervisory communications climate, and seven of its eight questions were found to be significantly effected by months in position of male supervisors. Male supervisors with the greater months in position were found to be more effective than those with the lesser months in position.

Years in Air Force

Sample sizes in the years in Air Force subgroups ranged from thirty-six in the less than one year category to 3,625 in the eight to twelve year category. This variable was highly significant for male supervisors as it was for female supervisors. All questions and statistical factors analyzed were found to be significantly affected by this variable. The multiple range tests indicated that male supervisors, like female supervisors, are perceived as being more effective when they have had more time in the service.

Months in Career Field

Sample sizes in the months in career field subgroups ranged from eleven in the less than one month category to almost 7,300 in the greater than thirty-six months

category. Again, the results for this variable were almost identical to those found for female supervisors. Only three of the nineteen questions, and neither of the statistical factors, were found to be significantly effected by months in career field. There were no significant multiple range test results for male supervisors. This variable had almost no effect for male and female supervisors.

Personnel Category

In the personnel category, subgroup sizes for male supervisors ranged from 1,022 civilian supervisors to almost 5,000 enlisted supervisors. Personnel category was found to be highly significant for male supervisors, unlike female supervisors. Only one of the variables analyzed was not found to be significantly affected by this variable. The multiple range tests found some similar and dissimilar results for male and female supervisors. Enlisted male and female supervisors generally were rated least effective; but whereas civilians were generally rated as the most effective female supervisors, officers were generally judged the most effective male supervisors. Male supervisors had two notable reversals to this trend. Enlisted supervisors were rated the highest on their ability to provide negative feedback to subordinates and to provide

technical advice. The same reversal in trend was seen in the analysis of age for male supervisors.

Rank

Rank of male supervisors was found to have a significant effect whether the supervisor was enlisted, civilian, or officer. The range of sample sizes for the enlisted rank subsets went from 285 in the E-4 or below category to 2,870 in the E-6 and above category. For enlisted male supervisors, the general trend was for the E-6 to E-9 group to be rated significantly higher than the other two groups. For female supervisors, enlisted rank had no significant effect.

Subgroups for officer rank ranged in size from 300 lieutenants to 1,265 field grade officers. Officer rank was significant for male and female supervisors. Male and female lieutenants scored significantly lower as supervisors than did captains and field grade officers with one exception for male supervisors. Field grade officers were rated lowest on their willingness to let subordinates know when they were doing a poor job. There was less differentiation between the ratings of captains and field grade officers for the male supervisors than for the female supervisors.

The sample sizes in the civilian rank subgroups ranged from sixty-four GS-8s and below to 515 GS-13s

and above. For civilian male supervisors, the general trend was for GS-8s and below to be rated the least effective, and for GS-13s and above to be rated the most effective. This trend was again notably reversed for the question dealing with the supervisor's willingness to give negative feedback to the subordinate. Civilian rank was not significant for female supervisors.

Professional Military Education

For PME, the sample sizes in the subgroups ranged from 544 in the Senior Service School group to almost 1,600 in the none completed category. PME was found to be extremely significant for male supervisors. It had a significant effect on all of the variables analyzed. For females, only three of the variables analyzed were found to be significant. The multiple range tests for male supervisors also provided some very significant trends. In all but two cases, the more PME a male supervisor completed, the higher he was rated by his subordinates. The first exception dealt with the ability of the supervisor to provide technical advice to subordinates. The second exception dealt with the same variable (434), whose results were notably reversed for civilian, officer, and enlisted rank. In the first case, supervisors who had completed no PME or who had completed one of the officer

service schools were rated the lowest. In the second exception, supervisors who had completed officer service schools were rated significantly lower than those who had completed enlisted PME.

Educational Level

The subgroup sample sizes for educational level ranged from eighty-eight in the no high school diploma category to 2,200 in the completed high school category. The educational level of the male supervisor was found to have a significant effect on his perceived effectiveness. As with PME, all questions and statistical factors were found to be significantly effected by the demographic variable. The educational level of female supervisors was found to be much less significant. In all but two cases, male supervisors with a bachelors degree or higher were rated the most effective. The two exceptions (434, 439) were the same found for PME, age, and personnel category. For the question dealing with technical advice sought from the supervisor, supervisors with masters and bachelors degrees were rated lower than those with doctorates or no college degree or high school diploma. For the other exception, supervisors with a bachelors degree or higher were rated significantly lower than those with no college degree or high school diploma.

Career Intentions

The sample sizes in the subgroups for career intentions ranged from 240 in the group of supervisors who would probably not make the Air Force a career to almost 5,000 in the group who plan to make the Air Force a career. Career intentions was found to be highly significant for male supervisors, as well as female supervisors. The general trend found by the multiple range tests was also the same for male and female supervisors. Supervisors, whether male or female, who intend to make the Air Force a career were rated significantly higher than supervisors who probably will not make the Air Force a career.

Ethnic Background

The last demographic variable examined was ethnic background. The subset sample sizes ranged from seventy-one Indian to almost 7,000 white male supervisors. Ethnic background for the male supervisor, unlike the female supervisor, was found to be highly significant. For male supervisors, the multiple range tests generally showed that black supervisors are rated less effective than white supervisors. This trend was, again, notably reversed for the question dealing with the supervisor's willingness to tell the subordinate that he or she is doing a poor job. For this question, white supervisors scored significantly

lower than black supervisors. Similar trends were not found for female supervisors.

Summary

The results of the post facto analysis showed that the same demographic variables that were highly significant for female supervisors were also highly significant for male supervisors. These variables were age, years in Air Force, officer rank, and career intentions. But, there were several variables that were found to be much more significant for male supervisors than for female supervisors. These were months in position, personnel category, enlisted and civilian rank, PME, educational level, and ethnic background. One other apparent difference between male and female supervisors relates to the two questions dealing with the supervisor's willingness to give the subordinate negative feedback and the supervisor's ability to provide the subordinate technical advice. For the first question, the results for male supervisors were reversed for the age, rank, PME, educational level, and ethnic background variables. For the second question, results were also reversed for male supervisors for the age, personnel category, PME, and educational level variables.

Summary

This chapter has provided the results of the analyses used to answer the two research questions posed in Chapter One and the results of the post facto analysis performed for male supervisors. For the first research question, analysis found that subordinates do not perceive any difference between the effectiveness of male and female supervisors in the Air Force. Analysis performed for the second research question found that certain demographic variables of the female supervisor do affect the subordinate's perceptions of her effectiveness. These variables were age, years in Air Force, officer rank, and career intentions. The post facto analysis performed for male supervisors to see if their perceived performance was effected by the same demographic variables as female supervisors foun some similarities and dissimilarities. The perceived effectiveness of male supervisors was affected by age, years in Air Force, officer rank, and career intentions similar to female supervisors, but unlike female supervisors, male supervisors' ratings were also affected by months in position, personnel category, civilian and enlisted rank, PME, educational level, and ethnic background.

CHAPTER V

RECOMMENDATIONS AND CONCLUSIONS

This research study grew out of a concern for the increasing number of women serving in the military, especially those in supervisory positions, and the effect their presence might have on military readiness.

To see how effectively women have performed in both the civilian and military communities to date, a literature review was performed. This review gave a brief background history on the involvement of women in the U.S. military and then summarized research done on women managers in both the civilian and military work climates. This research examined two areas: (1) the predicted performance of women as managers due to sex stereotypes at work in management climates, and (2) the actual job performance of women managers as perceived by themselves, their supervisors, subordinates, and peers.

The literature surfaced two important issues needing further study. The first was the noticeable lack of research dealing with the actual performances of women managers. The second was the growing belief among researchers that factors other than sex of the manager

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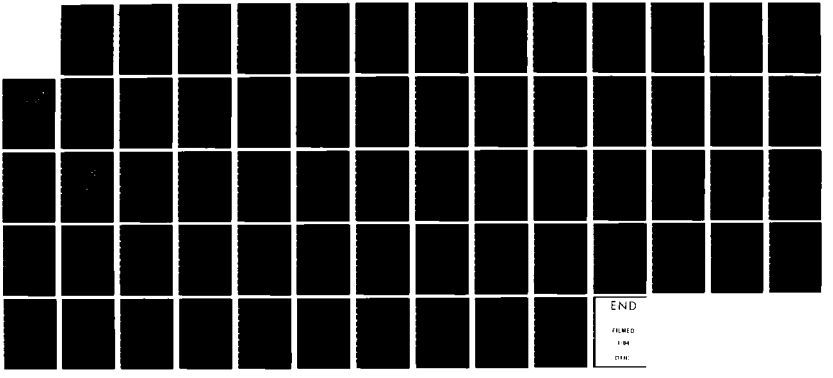

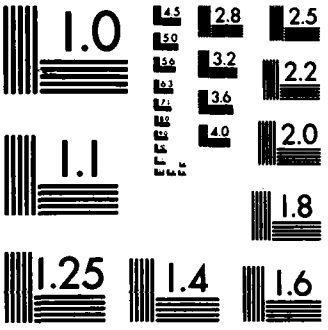

are becoming more important indicators of managerial effectiveness.

In order to address these issues, two research questions were posed. The research questions attempted first to determine if sex of the manager did have an effect on perceived effectiveness, and second to find factors other than sex of the supervisor that effect perceived performance. Since the second research question dealt only with female supervisors, a post facto analysis was performed to see if the same factors affected male supervisors.

To answer these questions, the OAP data base from the Leadership and Management Development Center was used. This data base contained survey responses from Air Force subordinates including their judgments on the effectiveness of their supervisors, both male and female. This data base allowed for the actual performances of female managers in the Air Force to be studied.

The results of the analyses for the two research questions and the post facto analysis tended to support the belief of other researchers that sex of the manager is no longer the most important factor or primary indicator of managerial effectiveness.

Research Question One

The analysis performed for the first research question found that subordinates did not perceive any significant difference between the effectiveness of male and female supervisors. Of the two statistical factors and nineteen questions analyzed, only two were found to be significantly different for male and female supervisors. Male supervisors were judged to work better under pressure than female supervisors. This result may be due to sex stereotypes existing in the work environment. Women have long been considered the weaker sex and have been traditionally expected to react negatively to pressure or crisis situations.

On the one question where female supervisors were rated higher, subordinates were more likely to seek out female supervisors for technical advice than male supervisors. This result might be due to the female sample population being lower in rank on the whole than the male sample population and not to any real difference in technical expertise. The greatest proportion of female supervisors fell in the lowest two civilian, enlisted, and officer rank categories. The greatest proportion of male supervisors fell in the highest rank categories for enlisted, civilian, and officer personnel. As Air Force supervisors move up in the ranks, they are encouraged to

hone their skills more as managers and less as technicians. Thus, the higher their rank the less likely they will be consulted on technical matters. This same issue surfaces in the post facto analysis.

Research Question Two

The results of the analysis for the second research question identified four demographic factors that did affect the perceived effectiveness of the female supervisor. These were age, years in Air Force, officer rank, and career intentions. Female supervisors who were older, had more time in the Air Force, and planned to make the Air Force a career were perceived as more effective supervisors. Female supervisors who were captains or field grade officers were also perceived to be more effective supervisors than lieutenants.

Two of these four variables, age and years in Air Force, can be linked to the experience level of the supervisor. One question raised by the analysis, then, is why months in position and months in career field were not also significant for female supervisors. Months in position was significant for four questions and the multiple range tests showed a fairly strong trend for supervisors serving in positions longer to be judged more effective. Since research has shown that it often takes women managers a much longer time to be accepted in an

organization, it is surprising that the results were not more significant. Similarly, months in career field was found to significantly effect only one variable analyzed. More significant results may not have been found due to the disparity in the subgroup sample sizes. Eighty percent of the sample population was contained in the group of supervisors with more than thirty-six months in their career field. The Duncan's multiple range test provides only approximate results for unequal cell sizes.

Since officer rank had a significant effect, it is surprising that enlisted and civilian rank did not. One explanation is that officer rank can also be linked to the supervisor's experience level. The officers with the least experience, lieutenants, were rated consistently lower than captains and field grade officers with more experience. This same relationship may not hold true for civilian supervisors. Many of the civilian jobs traditionally held by women have been secretarial or clerical positions which fall in the lower civil service ranks. Women in these positions may be very experienced at their jobs, but still hold the lower civil service rank assigned to that position. Women in the civilian sector could spend their whole careers as GS-8s or below. Female lieutenants, on the other hand, are either promoted to captain or separated.

Experience level may also partially explain why enlisted rank was not significant for female supervisors.

Female lieutenants, due to their status as officers and not to their experience or job competence, more often hold managerial positions than do women in the lower enlisted ranks. For lower ranking enlisted personnel, it is usually those who have proven themselves to be the most competent and reliable workers that are moved into managerial or supervisory positions early in their careers. This difference may account for officer rank being more significant than enlisted rank. Unequal cell sizes may have also contributed to the less significant findings for civilian and enlisted rank.

Post Facto Analysis

The results of the post facto analysis found that the ratings for male supervisors, like female supervisors, were significantly effected by age, years in Air Force, career intentions, and officer rank. But, the most interesting finding of this analysis was not the similarities but the dissimilarities found between male and female supervisors. Male supervisors, unlike female supervisors, were found to be significantly effected by months in position, personnel category, civilian and enlisted rank, educational level, PME, and ethnic background. Also, on two variables (434 and 439), the ratings for male supervisors were reversed from the findings for the other variables. This same reversal was not found for female supervisors.

Personnel category may have been more significant for male supervisors than female supervisors because, for males, it was a truer indicator of organizational status than for females. Women, due to sexual stereotypes present in the work environment, may be perceived as having the same low status regardless of their personnel category. Males, on the other hand, are more likely to be afforded status based on the position they hold in the organization.

This same relationship may hold for rank. Rank was significant for male supervisors whether civilian, enlisted, or officer. It was significant for female supervisors only if they were officers. As pointed out earlier, officer rank for female supervisors was probably significant due to their experience level and not to their status in the organization. Again, subordinates are probably less likely to afford the same status to women who are intermediate or senior level enlisted and civilian supervisors as they would to men in these same positions.

A similar relationship may hold true for ethnic background. Ethnic background was found to be highly significant for male supervisors but non-significant for female supervisors. Since females are already in the minority in the military, subordinates may not further differentiate them by race. Contrarily, males being clearly in the majority, subordinates are more likely to group or differentiate them due to their race.

Subordinates in rating women are probably so influenced by sexual stereotyping that stereotyping by race becomes less significant. Subordinates, not facing the same types of sexual stereotypes for male supervisors, may rely more heavily on ethnic stereotypes in rating male supervisors.

Educational background and PME were also highly significant for male supervisors but not for female supervisors. For male supervisors, the completion of PME and higher levels of education had a very positive effect on their ratings as supervisors. It is somewhat disturbing that the same effects were not found for female supervisors, since the Air Force strongly encourages its members to pursue advanced educational and professional military training. This finding is particularly disturbing for PME since the Air Force controls and directs the program. Does this finding indicate that PME is not meeting the special needs of female supervisors, or does it show that women are better supervisors in the beginning and thus PME does not significantly increase their effectiveness? Without further study, it is impossible to determine which question is correct.

Another puzzling difference between male and female supervisors was the disparity in subordinate responses for variables 434 and 439. For variable 434, male supervisors were rated highest if they were younger, were enlisted, had completed enlisted PME, had less than a bachelors degree,

were black, or were in the lower enlisted, civilian, or officer ranks. For variable 439, male supervisors were rated highest if they were younger, were civilian or enlisted, had completed enlisted PME, or had not completed a bachelors or masters degree. These responses were reversed for all other variables found to be significantly affected by these demographic factors. There was no reversal found for female supervisors.

The reversal for male supervisors for variable 439 seems quite logical and ties in with the findings for research question one for this variable. PME, age, and educational level can all be related to the experience level or status of the supervisor. As pointed out for the first research question, lower ranking personnel are encouraged to be more technically competent than higher ranking personnel. Thus, supervisors in the lower ranks have the most technical expertise for subordinates to take advantage of.

The difference in personnel category can also be explained. Officers are strongly encouraged, even at the lowest ranks to be better managers than technicians. Enlisted supervisors are encouraged to maintain their technical expertise longer and to develop their managerial skills later in their careers. Civilian supervisors are often hired to fill very specialized positions that military personnel are not available to fill such as

engineer or scientist. These positions require that the supervisors stay current in the technical aspects of their professions throughout their careers.

The analysis for research question one found for this one variable that female supervisors scored significantly higher than male supervisors. This result was attributed to the female sample population, on the whole, being much younger and lower in rank than the male sample population. Why the female sample did not show the same reversal as the male sample cannot be answered without further research.

Variable 434 may deal more with the status of the supervisor than with his experience level. Supervisors who are closer in status to the people they are supervising may be more willing or feel more comfortable in giving their subordinates negative feedback. Supervisors, on the other hand, who, by virtue of their age, rank, or personnel category, may be afforded much higher status than their subordinates, may feel very uncomfortable giving negative feedback to lower status personnel in their organization. If this relationship does hold true, it also explains why the same reversal was not found for female supervisors. As previously discussed, female supervisors may not be afforded the same status as male supervisors by virtue of their age, rank, or personnel category. Due to sexual stereotyping, their status may remain much the same whether they are officer, enlisted, or civilian, or whether they

are airmen, captains, or GS-13s. If female supervisors do not see themselves as having more status than their subordinates, they may feel much more comfortable in giving negative feedback no matter what their age, rank, or personnel category.

These three analyses have shown that sex of the supervisor alone does not determine how well subordinates perceive the effectiveness of the supervisor. But, the post facto analysis does show that sex of the supervisor may play at least a secondary role and that sexual stereotypes still may effect the perceptions of subordinates.

Recommendations for Further Study

This research study surfaced several areas for additional study. The study did not attempt to look at any interactions between the demographic variables. The results from the second research question and the post facto analysis indicate that many interactions may exist, especially between experience level and rank of the supervisor. Further study should be conducted to determine what interactions exist and to what extent.

Further study is also needed to determine why some demographic factors such as the level of PME completed affect male supervisors much more significantly than female supervisors. This would require looking at the subgroups

of these variables much more closely and determining what other factors might affect them. In the case of PME, officer and enlisted PME should be separately analyzed. The experience level and educational background of the personnel receiving the training should also be taken into consideration.

Another area that needs further study is what effect the demographic characteristics of the subordinates have on their perceptions of their supervisors. Do female subordinates view female supervisors differently than male supervisors? Does the age, race, or educational background of subordinates effect how they rate their supervisors? The OAP data base, as presently configured, does not allow for this type of analysis to be performed.

There may also be other demographic factors not measured by the OAP that have an effect on managerial effectiveness. One area of particular concern to the Air Force and her sister services at present is the effect of the increased number of single parents and join spouse assignments on military readiness. In order to study these additional demographics of the supervisor or to study the effects of subordinate demographics, a survey should be developed and administered that addresses these issues.

APPENDIX A

ORGANIZATIONAL ASSESSMENT PACKAGE

ORGANIZATIONAL ASSESSMENT PACKAGE

Leadership and Management
Development Center

Maxwell Air Force Base, Alabama

SCN 82 - 81
Expires 31 Dec 83

GENERAL INFORMATION

The leaders of your organization are genuinely interested in improving the overall conditions within their areas of responsibility. Providing a more satisfying Air Force way of life and increasing organizational effectiveness are also goals. One method of reaching these goals is by continual refinement of the management processes of the Air Force. Areas of concern include job related issues such as leadership and management; training and utilization; motivation of and concern for people; and the communication process.

This survey is intended to provide a means of identifying areas within your organization needing the greatest emphasis in the immediate future. You will be asked questions about your job, work group, supervisor, and organization. For the results to be useful, it is important that you respond to each statement thoughtfully, honestly, and as frankly as possible. Remember, this is <u>not</u> a test, there are no right or wrong responses.

Your completed response sheet will be processed by automated equipment, and be summarized in statistical form. Your individual response will remain confidential, as it will be combined with the responses of many other persons, and used for organizational feedback and possibly Air Force wide studies.

KEY WORDS

The following should be considered as key words throughout the survey:

-- Supervisor: The person to whom you report directly.

-- Work Group: All persons who report to the same supervisor that you do.

-- Organization: Your squadron. However, if you work in staff/support agencies, the division or directorate would be your organization.

PRIVACY ACT STATEMENT

In accordance with D.O.D. Directive 5400.11, Personal Privacy and Rights of Individuals Regarding Their Personnel Records, the following information about this survey is provided:

a. Authority: 10 U.S.C., 131.

b. Principal Purpose: The survey is being conducted to assess your organization from a leadership and management perspective.

c. Routine Uses: Information provided by respondents will be treated confidentially. The averaged data will be used for organizational strength and weakness identification and research and development purposes.

d. Participation: Response to this survey is voluntary. Your cooperation in this effort is appreciated.

[PLEASE DO NOT TEAR, MARK ON, OR OTHERWISE DAMAGE THIS BOOKLET]

INSTRUCTIONS

1. *All statements may be answered by filling in the appropriate spaces on* the response sheet provided. If you do not find a response that fits your case exactly, use the one that is the closest to the way you feel.

2. Be sure that you have completed Section 1 of the response sheet, as instructed by the survey administrator, before beginning Section 2.

3. Please use the pencil provided, and observe the following:

   --Make heavy black marks that fill the spaces.

   --Erase cleanly any responses you wish to change.

   --Make no stray markings of any kind on the response sheet.

   --Do not staple, fold or tear the response sheet.

   --Do not make any markings on the survey booklet.

4. The response sheet has a 0-7 scale. The survey statements normally require a 1-7 response. Use the zero (0) response only if the statement truly does not apply to your situation. Statements are responded to by marking the appropriate space on the response sheet as in the following example:

   Using the scale below, evaluate the sample statement.

   1 = Strongly disagree
   2 = Moderately disagree
   3 = Slightly disagree
   4 = Neither agree nor disagree
   5 = Slightly agree
   6 = Moderately agree
   7 = Strongly agree

Sample Statement. The information your work group receives from other work groups is helpful.

If you moderately agree with the sample statement, you would blacken the oval (6) on the response sheet.

	NA						
Sample Response:	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)

5. When you have completed the survey, please turn in the survey materials as instructed in the introduction.

BACKGROUND INFORMATION

This section of the survey concerns your background. The information requested is to insure that the groups you belong to are accurately represented and not to identify you as an individual. Please use the separate response sheet and darken the oval which corresponds to your response to each question.

1. Total years in the Air Force:

    1. Less than 1 year.
    2. More than 1 year, less than 2 years
    3. More than 2 years, less than 3 years.
    4. More than 3 years, less than 4 years.
    5. More than 4 years, less than 8 years.
    6. More than 8 years, less than 12 years.
    7. More than 12 years.

2. Total months in present career field.

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

3. Total months at this station:

    1. Less than 1 month.
    2. More than 1 month, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

4. Total months in present position:

    1. Less than 1 month.
    2. More than 1 months, less than 6 months.
    3. More than 6 months, less than 12 months.
    4. More than 12 months, less than 18 months.
    5. More than 18 months, less than 24 months.
    6. More than 24 months, less than 36 months.
    7. More than 36 months.

5. Your Ethnic Group is:

1. American Indian or Alaskan Native
2. Asian or Pacific Islander
3. Black, not of Hispanic Origin
4. Hispanic
5. White, not of Hispanic Origin
6. Other

6. Your highest education level attained is:

1. Non-high school graduate
2. High school graduate or GED
3. Less than two years college
4. Two years or more college
5. Bachelors Degree
6. Masters Degree
7. Doctoral Degree

7. Highest level of professional military education (residence or correspondence):

0. None or not applicable
1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)
2. NCO Leadership School (NCO Phase 3)
3. NCO Academy (NCO Phase 4)
4. Senior NCO Academy (NCO Phase 5)
5. Squadron Officer School
6. Intermediate Service School (i.e., ACSC, AFSC)
7. Senior Service School (i.e., AWC, ICAF, NWC)

8. How many people do you directly supervise?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

9. For how many people do you write performance reports?

1. None
2. 1
3. 2
4. 3
5. 4 to 5
6. 6 to 8
7. 9 or more

10. Does your supervisor actually write your performance reports?

1. yes 2. no 3. not sure

11. Which of the following "best" describes your marital status?

0. Not Married
1. Married: Spouse is a civilian employed outside home.
2. Married: Spouse is a civilian employed outside home-geographically separated.
3. Married: Spouse not employed outside home.
4. Married: Spouse not employed outside home-geographically separated.
5. Married: Spouse is a military member.
6. Married: Spouse is a military member-geographically separated.
7. Single Parent.

12. What is your usual work schedule?

1. Day shift, normally stable hours.
2. Swing shift (about 1600-2400)
3. Mid shift (about 2400-0800)
4. Rotating shift schedule
5. Day or shift work with irregular/unstable hours.
6. Frequent TDY/travel or frequently on-call to report to work.
7. Crew schedule.

13. How often does your supervisor hold group meetings?

1. Never
2. Occasionally
3. Monthly
4. Weekly
5. Daily
6. Continuously

14. How often are group meetings used to solve problems and establish goals?

1. Never
2. Occasionally
3. About half the time
4. All of the time

15. What is your aeronautical rating and current status?

1. Nonrated, not on aircrew
2. Nonrated, now on aircrew
3. Rated, in crew/operations job
4. Rated, in support job

16. Which of the following best describes your career or employment intentions?

1. Planning to retire in the next 12 months
2. Will continue in/with the Air Force as a career
3. Will most likely continue in/with the Air Force as a career
4. May continue in/with the Air Force
5. Will most likely not make the Air Force a career
6. Will separate/terminate from the Air Force as soon as possible

JOB INVENTORY

Below are items which relate to your job. Read each statement carefully and then decide to what extent the statement is true of your job. Indicate the extent to which the statement is true for your job by choosing the phrase which best represents your job.

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

Select the corresponding number for each question and enter it on the separate response sheet.

17. To what extent does your job require you to do many different things, using a variety of your talents and skills?

18. To what extent does your job involve doing a whole task or unit of work?

19. To what extent is your job significant, in that it affects others in some important way?

20. To what extent does your job provide a great deal of freedom and independence in scheduling your work?

21. To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?

22. To what extent are you able to determine how well you are doing your job without feedback from anyone else?

23. To what extent do additional duties interfere with the performance of your primary job?

24. To what extent do you have adequate tools and equipment to accomplish your job?

25. To what extent is the amount of work space provided adequate?

26. To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

27. To what extent does doing your job well affect a lot of people?

28. To what extent does your job provide you with the chance to finish completely the piece of work you have begun?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

29. To what extent does your job require you to use a number of complex skills?

30. To what extent does your job give you freedom to do your work as you see fit?

31. To what extent are you allowed to make the major decisions required to perform your job well?

32. To what extent are you proud of your job?

33. To what extent do you feel accountable to your supervisor in accomplishing your job?

34. To what extent do you know exactly what is expected of you in performing your job?

35. To what extent are your job performance goals difficult to accomplish?

36. To what extent are your job performance goals clear?

37. To what extent are your job performance goals specific?

38. To what extent are your job performance goals realistic?

39. To what extent do you perform the same tasks repeatedly within a short period of time?

40. To what extent are you faced with the same type of problem on a weekly basis?

41. To what extent are you aware of promotion/advancement opportunities that affect you?

42. To what extent do co-workers in your work group maintain hign standards of performance?

43. To what extent do you have the opportunity to progress up your career ladder?

44. To what extent are you being prepared to accept increased responsibility?

45. To what extent do people who perform well receive recognition?

46. To what extent does your work give you a feeling of pride?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

47. To what extent do you have the opportunity to learn skills which will improve your promotion potential?

48. To what extent do you have the necessary supplies to accomplish your job?

49. To what extent do details (tasks not covered by primary or additional duty descriptions) interfere with the performance of your primary job?

50. To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

JOB DESIRES

The statements below deal with job related characteristics. Read each statement and choose the response which best represents how much you would like to have each characteristic in your job.

In my job, I would like to have the characteristics described:

1 = Not at all
2 = A slight amount
3 = A moderate amount
4 = A fairly large amount
5 = A large amount
6 = A very large amount
7 = An extremely large amount

51. Opportunities to have independence in my work.

52. A job that is meaningful.

53. An opportunity for personal growth in my job.

54. Opportunities in my work to use my skills.

55. Opportunities to perform a variety of tasks.

56. A job in which tasks are repetitive.

57. A job in which tasks are relatively easy to accomplish.

SUPERVISION

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the phrase which best represents your attitude concerning your supervisor.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

58. My supervisor is a good planner.

59. My supervisor sets high performance standards.

60. My supervisor encourages teamwork.

61. My supervisor represents the group at all times.

62. My supervisor establishes good work procedures.

63. My supervisor has made his responsibilities clear to the group.

64. My supervisor fully explains procedures to each group member.

65. My supervisor performs well under pressure.

66. My supervisor takes time to help me when needed.

67. My supervisor asks members for their ideas on task improvements.

68. My supervisor explains how my job contributes to the overall mission.

69. My supervisor helps me set specific goals.

70. My supervisor lets me know when I am doing a good job.

71. My supervisor lets me know when I am doing a poor job.

72. My supervisor always helps me improve my performance.

73. My supervisor insures that I get job related training when needed.

74. My job performance has improved due to feedback received from my supervisor.

75. When I need technical advice, I usually go to my supervisor.

76. My supervisor frequently gives me feedback on how well I am doing my job.

WORK GROUP PRODUCTIVITY

The statements below deal with the output of your work group. The term "your work group" refers to you and your co-workers who work for the same supervisor. Indicate your agreement with the statement by selecting the phrase which best expresses your opinion.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number for each statement and enter it on the separate response sheet.

77. The quantity of output of your work group is very high.

78. The quality of output of your work group is very high.

79. When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.

80. Your work group always gets maximum output from available resources (e.g., personnel and material).

81. Your work group's performance in comparison to similar work groups is very high.

ORGANIZATION CLIMATE

Below are items which describe characteristics of your organization. The term "your organization" refers to your squadron or staff agency. Indicate your agreement by choosing the phrase which best represents your opinion concerning your organization.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number for each item and enter it on the separate response sheet.

JOB RELATED ISSUES

The items below are used to determine how satisfied you are with specific job related issues. Indicate your degree of satisfaction or dissatisfaction with each issue by choosing the most appropriate phrase.

1 = Extremely dissatisfied
2 = Moderately dissatisfied
3 = Slightly dissatisfied
4 = Neither satisfied nor dissatisfied
5 - Slightly satisfied
6 = Moderately satisfied
7 = Extremely satisfied

Select the corresponding number for each question and enter it on the separate response sheet.

101. Feeling of Helpfulness
The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.

102. Co-Worker Relationship
My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.

103. Family Attitude Toward Job
The recognition and the pride my family has in the work I do.

104. On-the-Job Training (OJT)
The OJT instructional methods and instructors' competence.

105. Technical Training (Other than OJT)
The technical training I have received to perform my current job.

106. Work Schedule
My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.

107. Job Security

108. Acquired Valuable Skills
The chance to acquire valuable skills in my job which prepare me for future opportunities.

109. My Job as a Whole

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree or disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

82. Ideas developed by my work group are readily accepted by management personnel above my supervisor.

83. My organization provides all the necessary information for me to do my job effectively.

84. My organization provides adequate information to my work group.

85. My work group is usually aware of important events and situations.

86. My complaints are aired satisfactorily.

87. My organization is very interested in the attitudes of the group members toward their jobs.

88. My organization has a very strong interest in the welfare of its people.

89. I am very proud to work for this organization.

90. I feel responsible to my organization in accomplishing its mission.

91. The information in my organization is widely shared so that those needing it have it available.

92. Personnel in my unit are recognized for outstanding performance.

93. I am usually given the opportunity to show or demonstrate my work to others.

94. There is a high spirit of teamwork among my co-workers.

95. There is outstanding cooperation between work groups of my organization.

96. My organization has clear-cut goals.

97. I feel motivated to contribute my best efforts to the mission of my organization.

98. My organization rewards individuals based on performance.

99. The goals of my organization are reasonable.

100. My organization provides accurate information to my work group.

APPENDIX B

FACTORS AND VARIABLES

ORGANIZATIONAL

ASSESSMENT

PACKAGE

FACTORS AND VARIABLES

LEADERSHIP
AND
MANAGEMENT
DEVELOPMENT
CENTER

AIR UNIVERSITY
MAXWELL AFB, ALABAMA

GENERAL INFORMATION

The purpose of the Organizational Assessment Package (OAP) Users Guide is to provide the information necessary to understand and effectively use the OAP system. The material in this guide is intended to identify and define the OAP factors and variables. This guide is divided into sections that include:

SECTION 1: Definitions of OAP Factors

SECTION 2: OAP Demographic Items

SECTION 3: Work Itself

SECTION 4: Job Enrichment

SECTION 5: Work Group Process

SECTION 6: Work Group Output

SECTION 7: OAP Variables (Listed numerically and cross-referenced)

The OAP was developed for use by the Air Force Leadership and Management Development Center (LMDC), Maxwell AFB, Alabama. The objectives of the OAP are to:

1. Inform commanders, managers, supervisors, and functional staff agencies of the nature, magnitude, level, scope, and source of current and potential leadership and management strengths and problems.

2. Provide inputs to Air Force education and training programs, to increase instructional effectiveness, and to provide inputs for curriculum development.

3. Provide feedback for improving the effectiveness of the LMDC Management Consultation Teams.

4. Develop LMDC training programs for management consultants to expand their consulting capabilities in areas which would best serve needs of the Air Force and specific organizations.

5. Provide a wide, varied, and creditable data base for research in the fields of leadership and management as well as research into jobs and career fields.

6. Provide an Air Force-wide management information system for decision making.

The principle instrument of the OAP is a 109 question survey which is administered as a first step in a LMDC consultant visit to a base. In addition to the demographic items, the OAP survey contains attitudinal questions which are grouped to form 25 factors. The questions making up the factors are designed to solicit responses from individuals on a wide range of job related factors as well as factors relating to supervision, communications, and performance within the organization. The allowable responses to the survey questions range from one, indicating disagreement or dissatisfaction, to seven, indicating a high level of agreement or satisfaction.

The factors measured by the OAP are grouped into a systems model to assess three aspects of a work group: input, process, and output (adapted from McGrath's model).

Input. In LMDC's adaptation of the model, input is comprised of demographics, work itself, and job enrichment.

A. Demographics. Descriptive or background information about the respondents to the OAP survey (see section 2 for a list of demographic items).

B. Work Itself. The work itself has to do with the task properties (technologies) and environmental conditions of the job. It assesses the patterns of characteristics members bring to the group or organization, and patterns of differentiation and integration among position and roles. The following OAP factors measure the work itself:

806 - Job Desires (Need For Enrichment)
810 - Job Performance Goals
812 - Task Characteristics
813 - Task Autonomy
814 - Work Repetition
816 - Desired Repetitive Easy Tasks
823 - Job Related Training
Job Influences (not a statistical factor)

C. Job Enrichment. Measures the degree to which the job itself is interesting, meaningful, challenging, and responsible. The following OAP factors measure job enrichment:

800 - Skill Variety
801 - Task Identity
802 - Task Significance
804 - Job Feedback
806 - Need for Enrichment Index (Job Desires)
807 - Job Motivation Index
808 - OJI Total Score
809 - Job Motivation Index - Additive
825 - Motivation Potential Score

Work Group Process. The work group process assesses the pattern of activity and interaction among the group members. The following OAP factors measures leadership and the work group process:

805 - Performance Barriers/Blockages (Work Support)
818 - Management and Supervision
819 - Supervisory Communications Climate
820 - Organizational Communications Climate
Work Interferences (not a statistical factor)
Supervisory Assistance (not a statistical factor)

Work Group Output. Measures task performance, group development, and effects on group members. Assesses the quantity and quality of task performance and alteration of the group's relation to the environment. Assesses changes in positions and role patterns, and in the development of norms. Assesses changes on skills and attitudes, and effects on adjustment. The following OAP factors measure the work group output:

811 - Pride
817 - Advancement/Recognition
821 - Work Group Effectiveness (Perceived Productivity)
822 - Job Related Satisfaction
824 - General Organizational Climate

Section 1

DEFINITIONS OF OAP FACTORS

(STATISTICAL FACTORS)

800 Skill Variety: Measures the degree to which a job requires a variety of different tasks or activities in carrying out the work, which involve the use of a number of different skills and talents of the worker. A key is that the skills required are valued by the worker.

801 Task Identity: Measures the degree to which the job requires completion of a "whole" and identifiable piece of work from beginning to end.

802 Task Significance: Measures the degree to which the job has a substantial impact on the lives or work of others; the importance of the job.

803 (Not Used)

804 Job Feedback: Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

805 Performance Barriers/Blockages (Work Support): Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

806 Need for Enrichment Index (Job Desires): Refers to the job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

807 Job Motivation Index: A composite index derived from the job characteristics that reflects the overall "motivational aspects" of a job; the degree to which a job prompts high internal work motivation on the part of job encumbents.

808 OJI Total Score: A composite index derived from the job characteristics that reflects one's perception of motivation provided by the job itself as opposed to motivation provided by others. This factor is similar to the other job motivation factors, but it employs a slightly different theory in arriving at the results.

809 Job Motivation Index - Additive: This factor employs a variation of theory used by the other job motivation factors.

810 Job Performance Goals: Measures the degree to which job performance goals are clear, specific, realistic, understandable, and challenging.

811 Pride: Measures the pride in one's work.

812 Task Characteristics: A combination of skill variety, task identity, task significance, and job feedback designed to measure several aspects of one's job.

813 Task Autonomy: Measures the degree to which the job provides freedom to do the work as one sees fit; discretion in scheduling, decision-making, and means for accomplishing a job.

814 Work Repetition: Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

816 Desired Repetitive Easy Tasks: Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

817 Advancement/Recognition: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

818 Management and Supervision: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

819 Supervisory Communications Climate: Measures the degree to which the worker perceives that there is good rapport with supervisors; that there is a good working environment; that innovation for task improvement is encouraged, and that rewards are based upon performance.

820 Organizational Communications Climate: Measures the degree to which the worker perceives that there is an open communications environment in the organization, and that adequate information is provided to accomplish the job.

821 Work Group Effectiveness (Perceived Productivity): Measures one's view of the quantity, quality and efficiency of work generated by his or her work group.

822 Job Related Satisfaction: Measures the degree to which the worker is generally satisfied with factors surrounding the job.

823 Job Related Training: Measures the extent to which one is satisfied with on-the-job and technical training received.

824 General Organizational Climate: Measures the individual's perception of his or her organizational environment as a whole (i.e., spirit of team work, communications, organizational pride, etc.).

825 Motivation Potential Score: This factor employs a variation of theory used by the other job motivation factors. It ranges between 0 and 343 with 100 being the Air Force average. Low scores indicate a poorly motivating job.

(NON-STATISTICAL FACTORS)

Job Influences: Refers to worker's feelings of accountability to his or her supervisor, and standards of performance.

Work Interferences: Identifies things which impede an individual's job performance.

Supervisory Assistance: Measures the extent to which a supervisor helps the subordinate.

Section 2

OAP DEMOGRAPHIC ITEMS

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
-	-	Supervisor's Code
-	-	Work Group Code
-	-	Sex
-	-	Your age is
-	-	You are (officer, enlisted, GS, etc.)
-	-	Your pay grade is
-	-	Primary AFSC
-	-	Duty AFSC
(Note: The above items are contained on the response sheet.)		
001	-	(Not Used)
002	-	(Not Used)
003	1	Total years in the Air Force: 1. Less than 1 year 2. More than 1 year, less than 2 years 3. More than 2 years, less than 3 years 4. More than 3 years, less than 4 years 5. More than 4 years, less than 8 years 6. More than 8 years, less than 12 years 7. More than 12 years
004	2	Total months in present career field: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
005	3	Total months at this station: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
006	4	Total months in present position: 1. Less than 1 month 2. More than 1 month, less than 6 months 3. More than 6 months, less than 12 months 4. More than 12 months, less than 18 months 5. More than 18 months, less than 24 months 6. More than 24 months, less than 36 months 7. More than 36 months
007	5	Your Ethnic Group is: 1. American Indian or Alaskan Native 2. Asian or Pacific Islander 3. Black, not of Hispanic Origin 4. Hispanic 5. White, not of Hispanic Origin 6. Other
008	11	Which of the following "best" describes your marital status? 0. Not married. 1. Married: Spouse is a civilian employed outside home. 2. Married: Spouse is a civilian employed outside home - geographically separated. 3. Married: Spouse not employed outside home. 4. Married: Spouse not employed outside home - geographically separated. 5. Married: Spouse is a military member. 6. Married: Spouse is a military member - geographically separated. 7. Single parent.
NOTE: Variable 008, statement 11, was added to the OAP on 19 Jan. 80 and replaced variable 014 which appears on page 3. Although no longer used, Variable 014 is still shown because data collected from about 25,000 samples for this variable remains in the data base.		
009	6	Your highest education level obtained is: 1. Non-high school graduate 2. High school graduate or GED 3. Less than two years college 4. Two years or more college 5. Bachelors Degree 6. Masters Degree 7. Doctoral Degree

Section 2 (Continued)

OAP DEMOGRAPHIC ITEMS

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
010	7	Highest level of professional military education (residence or correspondence): 0. None or not applicable 1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2) 2. NCO Leadership School (NCO Phase 3) 3. NCO Academy (NCO Phase 4) 4. Senior NCO Academy (NCO Phase 5) 5. Squadron Officer School 6. Intermediate Service School (i.e., ACSC, AFSC) 7. Senior Service School (i.e., AWC, ICAF, NWC)
011	8	How many people do you directly supervise? 1. None 5. 4 to 5 2. 1 6. 6 to 8 3. 2 7. 9 or more 4. 3
012	9	For how many people do you write performance reports? 1. None 5. 4 to 5 2. 1 6. 6 to 8 3. 2 7. 9 or more 4. 3
013	10	Does your supervisor actually write your performance reports? 1. Yes 2. No 3. Not Sure
014	11	Your work requires you to work primarily: 1. Alone 2. With one or two people 3. As a small work group (3-5 people) 4. As a large work group (6 or more people) 5. Other
015	12	What is your usual work schedule? 1. Day shift, normally stable hours 2. Swing shift (about 1600-2400) 3. Mid shift (about 2400-0800) 4. Rotating shift schedule 5. Day or shift work with irregular/unstable hours 6. Frequent TDY/travel or frequently on-call to report to work 7. Crew schedule
016	13	How often does your supervisor hold group meetings? 1. Never 4. Weekly 2. Occasionally 5. Daily 3. Monthly 6. Continuously
017	14	How often are group meetings used to solve problems and establish goals? 1. Never 3. About half the time 2. Occasionally 4. All of the time
018	15	What is your aeronautical rating and current status? 1. Nonrated, not on aircrew 2. Nonrated, now on aircrew 3. Rated, in crew/operations job 4. Rated, in support job
019	16	Which of the following best describes your career or employment intentions? 1. Planning to retire in the next 12 months 2. Will continue in/with the Air Force as a career 3. Will most likely continue in/with the air force 4. May continue in/with the Air Force 5. Will most likely not make the Air Force a career 6. Will separate/terminate from the Air Force as soon as possible

Section 3

WORK ITSELF

FACTOR B06 - JOB DESIRES (NEED FOR ENRICHMENT INDEX): Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
[In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount"]		
249	51	Opportunities to have independence in my work.
250	52	A job that is meaningful.
251	53	The opportunity for personal growth in my job.
252	54	Opportunities in my work to use my skills.
253	55	Opportunities to perform a variety of tasks.

FACTOR B10 - JOB PERFORMANCE GOALS: Measures the extent to which job performance goals are clear, specific, realistic, understandable, and challenging.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
217	34	To what extent do you know exactly what is expected of you in performing your job?
218	35	To what extent are your job performance goals difficult to accomplish?
273	36	To what extent are your job performance goals clear?
274	37	To what extent are your job performance goals specific?
221	38	To what extent are your job performance goals realistic?

FACTOR B12 - TASK CHARACTERISTICS: A combination of skill variety, task identity, task significance, and job feedback designed to measure several aspects of one's job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
202	18	To what extent does your job involve doing a whole task or unit of work?
203	19	To what extent is your job significant, in that it affects others in some important way?
272	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
209	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
210	27	To what extent does doing your job well affect a lot of people?
211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
212	29	To what extent does your job require you to use a number of complex skills?

Section 3 (Continued)

WORK ITSELF

FACTOR B13 - TASK AUTONOMY: Measures the degree to which the job provides freedom to do the work as one sees fit; discretion in scheduling, decision making, and means for accomplishing a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
270	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?
271	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?
213	30	To what extent does your job give you freedom to do your work as you see fit?
214	31	To what extent are you allowed to make the major decisions required to perform your job well?

FACTOR B14 - WORK REPETITION: Measures the extent to which one performs the same tasks or faces the same type of problems in his or her job on a regular basis.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
226	39	To what extent do you perform the same tasks repeatedly within a short period of time?
227	40	To what extent are you faced with the same type of problem on a weekly basis?

FACTOR B16 - DESIRED REPETITIVE EASY TASKS: Measures the extent to which one desires his or her job to involve repetitive tasks or tasks that are easy to accomplish.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
255	56	A job in which tasks are repetitive.
258	57	A job in which tasks are relatively easy to accomplish.

FACTOR B23 - JOB RELATED TRAINING: Measures the extent to which one is satisfied with on-the-job and technical training received.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
711	104	On-the-Job Training (OJT) The OJT instructional methods and instructors' competence.
712	105	Technical Training (Other than OJT) The technical training I have received to perform my current job.

FACTOR - JOB INFLUENCES (NOT A STATISTICAL FACTOR):

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
216	33	To what extent do you feel accountable to your supervisor in accomplishing your job?
238	42	To what extent do co-workers in your work group maintain high standards of performance?

Section 4

JOB ENRICHMENT

FACTOR 800 - SKILL VARIETY: Measures the degree to which a job requires a variety of different tasks or activities in carrying out the work; involves the use of a number of different skills and talents of the worker; skills required are valued by the worker.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
212	29	To what extent does your job require you to use a number of complex skills?

FACTOR 801 - TASK IDENTITY: Measures the degree to which the job requires completion of a "whole" and identifiable piece of work from beginning to end.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
202	18	To what extent does your job involve doing a whole task or unit of work?
211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?

FACTOR 802 - TASK SIGNIFICANCE: Measures the degree to which the job has a substantial impact on the lives or work of others; the importance of the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
203	19	To what extent is your job significant, in that it affects others in some important way?
210	27	To what extent does doing your job well affect a lot of people?

FACTOR 804 - JOB FEEDBACK: Measures the degree to which carrying out the work activities required by the job results in the worker obtaining clear and direct information about job outcomes or information on good and poor performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
272	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
209	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?

FACTOR 806 - NEED FOR ENRICHMENT INDEX (JOB DESIRES): Has to do with job related characteristics (autonomy, personal growth, use of skills, etc.) that the individual would like in a job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")		
249	51	Opportunities to have independence in my work.
250	52	A job that is meaningful.
251	53	The opportunity for personal growth in my job.
252	54	Opportunities in my work to use my skills.
253	55	Opportunities to perform a variety of tasks.

Section 5

WORK GROUP PROCESS

FACTOR 805 - PERFORMANCE BARRIERS/BLOCKAGES (WORK SUPPORT): Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
206	23	To what extent do additional duties interfere with the performance of your primary job?
207	24	To what extent do you have adequate tools and equipment to accomplish your job?
208	25	To what extent is the amount of work space provided adequate?

Formula (8-206+207+208)/3

FACTOR 810 - MANAGEMENT AND SUPERVISION: Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
404	58	My supervisor is a good planner.
405	59	My supervisor sets high performance standards.
410	60	My supervisor encourages teamwork.
411	61	My supervisor represents the group at all times.
412	62	My supervisor establishes good work procedures.
413	63	My supervisor has made his responsibilities clear to the group.
445	64	My supervisor fully explains procedures to each group member.
416	65	My supervisor performs well under pressure.

FACTOR - WORK INTERFERENCES (NOT A STATISTICAL FACTOR): Identifies things which impede an individual's job performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
277	48	To what extent do you have the necessary supplies to accomplish your job?
278	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
279	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?

FACTOR 819 - SUPERVISORY COMMUNICATIONS CLIMATE: Measures the degree to which the worker perceives that there is good rapport with supervisors; that there is a good working environment, that innovation for task improvement is encouraged, and that rewards are based upon performance.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
426	67	My supervisor asks members for their ideas on task improvements.
428	68	My supervisor explains how my job contributes to the overall mission.
431	69	My supervisor helps me set specific goals.
433	70	My supervisor lets me know when I am doing a good job.
435	72	My supervisor always helps me improve my performance.
436	73	My supervisor insures that I get job related training when needed.
437	74	My job performance has improved due to feedback received from my supervisor.
442	76	My supervisor frequently gives me feedback on how well I am doing my job.

Section 5 (Continued)

WORK GROUP PROCESS

FACTOR 820 - ORGANIZATIONAL COMMUNICATIONS CLIMATE: Measures the degree to which the worker perceives that there is an open communications environment in the organization, and that adequate information is provided to accomplish the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
300	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
301	83	My organization provides all the necessary information for me to do my job effectively.
302	84	My organization provides adequate information to my work group.
303	85	My work group is usually aware of important events and situations.
304	86	My complaints are aired satisfactorily.
309	91	The information in my organization is widely shared so that those needing it have it available.
314	96	My organization has clear-cut goals.
317	99	The goals of my organization are reasonable.
318	100	My organization provides accurate information to my work group.

SUPERVISORY ASSISTANCE (NOT A STATISTICAL FACTOR): Measures the extent to which a supervisor helps the subordinate.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
424	66	My supervisor takes time to help me when needed.
434	71	My supervisor lets me know when I am doing a poor job.
439	75	When I need technical advice, I ususally go to my supervisor.

Section 6

WORK GROUP OUTPUT

FACTOR 811 - PRIDE: Measures the pride in one's work.

215	32	To what extent are you proud of your job?
275	46	To what extent does your work give you a feeling of pride?

FACTOR 817 - ADVANCEMENT/RECOGNITION: Measures one's awareness of advancement and recognition, and feelings of being prepared (i.e., learning new skills for promotion).

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
234	41	To what extent are you aware of promotion/advancement opportunities that affect you?
239	43	To what extent do you have the opportunity to progress up your career ladder?
240	44	To what extent are you being prepared to accept increased responsibility?
241	45	To what extent do people who perform well receive recognition?
276	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?

FACTOR 821 - WORK GROUP EFFECTIVENESS (PERCEIVED PRODUCTIVITY). Measures one's view of the quantity, quality, and efficiency of work generated by his or her work group.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
259	77	The quantity of output of your work group is very high
260	78	The quality of output of your work group is very high
261	79	When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations
264	80	Your work group always gets maximum output from available resources (e.g., personnel and material)
265	81	Your work group's performance in comparison to similar work groups is very high

FACTOR 822 - JOB RELATED SATISFACTION. Measures the degree to which the worker is generally satisfied with factors surrounding the job.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
705	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
709	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
710	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.
717	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
718	107	Job Security
719	108	Acquired Valuable Skills The chance to acquire valuable skills in my job which prepare me for future opportunities.
723	109	My Job as a Whole

FACTOR 824 - GENERAL ORGANIZATIONAL CLIMATE: Measures the individual's perception of his or her organizational environment as a whole (i.e. spirit of team work, communications, organizational pride, etc.).

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
305	87	My organization is very interested in the attitudes of the group members toward their jobs.
306	88	My organization has a very strong interest in the welfare of its people.
307	89	I am very proud to work for this organization.
308	90	I feel responsible to my organization in accomplishing its mission.
310	92	Personnel in my unit are recognized for outstanding performance.
311	93	I am usually given the opportunity to show or demonstrate my work to others.
312	94	There is a high spirit of teamwork among my co-workers.
313	95	There is outstanding cooperation between work groups of my organization.
315	97	I feel motivated to contribute my best efforts to the mission of my organization.
316	98	My organization rewards individuals based on performance.

Section 7

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
201	800/812	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
202	801/812	18	To what extent does your job involve doing a whole task or unit of work?
203	802/812	19	To what extent is your job significant, in that it affects others in some important way?
204	-	-	(Not Used)
205	-	-	(Not Used)
206	805	23	To what extent do additional duties interfere with the performance of your primary job?
207	805	24	To what extent do you have adequate tools and equipment to accomplish your job?
208	805	25	To what extent is the amount of work space provided adequate?
209	804/812	26	To what extent does your job provide the chance to know for yourself when you do a good job, and to be responsible for your own work?
210	802/812	27	To what extent does doing your job well affect a lot of people?
211	801/812	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
212	800/812	29	To what extent does your job require you to use a number of complex skills?
213	813	30	To what extent does your job give you freedom to do your work as you see fit?
214	813	31	To what extent are you allowed to make the major decisions required to perform your job well?
215	811	32	To what extent are you proud of your job?
216	(Note)	33	To what extent do you feel accountable to your supervisor in accomplishing your job?
217	810	34	To what extent do you know exactly what is expected of you in performing your job?
218	810	35	To what extent are your job performance goals difficult to accomplish?
219	-	-	(Not Used)
220	-	-	(Not Used)
221	810	38	To what extent are your job performance goals realistic?
222	-	-	(Not Used)
223	-	-	(Not Used)
224	-	-	(Not Used)
225	-	-	(Not Used)
226	814	39	To what extent do you perform the same tasks repeatedly within a short period of time?
227	814	40	To what extent are you faced with the same type of problem on a weekly basis?
228	-	-	(Not Used)
229	-	-	(Not Used)
230	-	-	(Not Used)
231	-	-	(Not Used)
232	-	-	(Not Used)
233	-	-	(Not Used)

Note: This variable is an element of "Job Influences" (not a statistical factor).

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
234	817	41	To what extent are you aware of promotion/advancement opportunities that affect you?
235	-	-	(Not Used)
236	-	-	(Not Used)
237	-	-	(Not Used)
238	(Note)	42	To what extent do co-workers in your work group maintain high standards of performance?
239	817	43	To what extent do you have the opportunity to progress up your career ladder?
240	817	44	To what extent are you being prepared to accept increased responsibility?
241	817	45	To what extent do people who perform well receive recognition?
242	-	-	(Not Used)
243	-	-	(Not Used)
244	-	-	(Not Used)
245	-	-	(Not Used)
246	-	-	(Not Used)
247	-	-	(Not Used)
248	-	-	(Not Used)
(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")			
249	806	51	Opportunities to have independence in my work?
250	806	52	A job that is meaningful
251	806	53	The opportunity for personal growth in my job
252	806	54	Opportunities in my work to use my skills
253	806	55	Opportunities to perform a variety of tasks
254	-	-	(Not Used)
255	816	56	A job in which tasks are repetitive.
256	-	-	(Not Used)
257	-	-	(Not Used)
258	816	57	A job in which tasks are relatively easy to accomplish.
259	821	77	The quantity of output of your work group is very high
260	821	78	The quality of output of your work group is very high
261	821	79	When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations
262	-	-	(Not Used)
263	-	-	(Not Used)
264	821	80	Your work group always gets maximum output from available resources (e.g., personnel and material)
265	821	81	Your work group's performance in comparison to similar work groups is very high
266	-	-	(Not Used)
267	-	-	(Not Used)

Note: This variable is an element of "job influences" (not a statistical factor).

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
268	-	-	(Not Used)
269	-	-	(Not Used)
270	813	20	To what extent does your job provide a great deal of freedom and independence in scheduling your work?
271	813	21	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?
272	804/812	22	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
273	810	36	To what extent are your job performance goals clear?
274	810	37	To what extent are your job performance goals specific?
275	811	46	To what extent does your work give you a feeling of pride?
276	817	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?
277	(Note)	48	To what extent do you have the necessary supplies to accomplish your job?
278	(Note)	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?
279	(Note)	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?
280 thru 299	-	-	(Not Used)

Note: These variables are elements of "work interferences" (not a statistical factor).

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
300	820	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
301	820	83	My organization provides all the necessary information for me to do my job effectively.
302	820	84	My organization provides adequate information to my work group.
303	820	85	My work group is usually aware of important events and situations.
304	820	86	My complaints are aired satisfactorily.
305	824	87	My organization is very interested in the attitudes of the group members toward their jobs.
306	824	88	My organization has a very strong interest in the welfare of its people.
307	824	89	I am very proud to work for this organization.
308	824	90	I feel responsible to my organization in accomplishing its mission.
309	820	91	The information in my organization is widely shared so that those needing it have it available.
310	824	92	Personnel in my unit are recognized for outstanding performance.
311	824	93	I am usually given the opportunity to show or demonstrate my work to others.
312	824	94	There is a high spirit of teamwork among my co-workers.
313	824	95	There is outstanding cooperation between work groups of my organization.

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
314	820	96	My organization has clear-cut goals.
315	824	97	I feel motivated to contribute my best efforts to the mission of my organization.
316	824	98	My organization rewards individuals based on performance.
317	820	99	The goals of my organization are reasonable.
318	820	100	My organization provides accurate information to my work group.
319 thru 399		-	(Not Used)
400	-	-	(Not Used)
401	-	-	(Not Used)
402	-	-	(Not Used)
403	-	-	(Not Used)
404	818	58	My supervisor is a good planner.
405	818	59	My supervisor sets high performance standards.
406	-	-	(Not Used)
407	-	-	(Not Used)
408	-	-	(Not Used)
409	-	-	(Not Used)
410	818	60	My supervisor encourages teamwork.
411	818	61	My supervisor represents the group at all times.
412	818	62	My supervisor establishes good work procedures.
413	818	63	My supervisor has made his responsibilities clear to the group.
414	-	-	(Not Used)
415	-	-	(Not Used)
416	818	65	My supervisor performs well under pressure.
417	-	-	(Not Used)
418	-	-	(Not Used)
419	-	-	(Not Used)
420	-	-	(Not Used)
421	-	-	(Not Used)
422	-	-	(Not Used)
423	-	-	(Not Used)
424	(Note)	66	My supervisor takes time to help me when needed.
425	-	-	(Not Used)
426	819	67	My supervisor asks members for their ideas on task improvements.
427	-	-	(Not Used)
428	819	68	My supervisor explains how my job contributes to the overall mission.
429	-	-	(Not Used)
430	-	-	(Not Used)
431	819	69	My supervisor helps me set specific goals.
432	-	-	(Not Used)

Note: This variable is an element of "supervisory assistance" (not a statistical factor).

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
433	819	70	My supervisor lets me know when I am doing a good job.
434	(Note)	71	My supervisor lets me know when I am doing a poor job.
435	819	72	My supervisor always helps me improve my performance.
436	819	73	My supervisor insures that I get job related training when needed.
437	819	74	My job performance has improved due to feedback received from my supervisor.
438	-	-	(Not Used)
439	(Note)	75	When I need technical advice, I usually go to my supervisor.
440	-	-	(Not Used)
441	-	-	(Not Used)
442	819	76	My supervisor frequently gives me feedback on how well I am doing my job.
443	-	-	(Not Used)
444	-	-	(Not Used)
445	818	64	My supervisor fully explains procedures to each group member.
446 thru 699	-	-	(Not Used)
700	-	-	(Not Used)
701	-	-	(Not Used)
702	-	-	(Not Used)
703	-	-	(Not Used)
704	-	-	(Not Used)
705	822	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
706	-	-	(Not Used)

Note. These variables are elements of "supervisory assistance" (not a statistical factor).

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
707	-	-	(Not Used)
708	-	-	(Not Used)
709	822	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
710	822	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.
711	823	104	On-the-Job Training (OJT) The OJT instructional methods and instructors' competence.
712	823	105	Technical Training (Other than OJT) The technical training I have received to perform my current job.
713	-	-	(Not Used)
714	-	-	(Not Used)
715	-	-	(Not Used)
716	-	-	(Not Used)
717	822	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
718	822	107	Job Security
719	822	108	Acquired Valuable Skills The chance to acquire valuable skills in my job which prepare me for future opportunities.
720	-	-	(Not Used)
721	-	-	(Not Used)
722	-	-	(Not Used)
723	822	109	My Job as a Whole
724 thru 999	-	-	(Not Used)

APPENDIX C

ANALYSES OF VARIANCE

ANALYSIS OF VARIANCE FOR EFFECT OF AGE ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Prob-ability	Multiple Range Test	Variable	Number of Cases	F Prob-ability	Multiple Range Test
Z818	684	.017 *	#	Z818	8479	.000 *	#
Z404	699	.054 *	#	Z404	8581	.000 *	#
Z405	701	.000 *	#	Z405	8584	.000 *	#
Z410	699	.003 *	#	Z410	8571	.000 *	#
Z411	696	.008 *	#	Z411	8569	.000 *	#
Z412	699	.081	#	Z412	8579	.000 *	#
Z413	693	.051 *	#	Z413	8573	.002 *	#
Z445	696	.124	#	Z445	8558	.412	
Z416	700	.001 *	#	Z416	8573	.000 *	#
Z819	693	.002 *	#	Z819	8493	.000 *	#
Z426	701	.009 *	#	Z426	8576	.000 *	#
Z428	699	.000 *	#	Z428	8572	.000 *	#
Z431	700	.000 *	#	Z431	8579	.000 *	#
Z433	700	.008 *	#	Z433	8585	.000 *	#
Z435	700	.001 *	#	Z435	8575	.071	#
Z436	698	.073	#	Z436	8558	.389	
Z437	697	.050 *	#	Z437	8576	.247	
Z442	700	.010 *	#	Z442	8578	.177	
Z424	700	.004 *	#	Z424	8581	.000 *	#
Z434	697	.078	#	Z434	8571	.000 *	#
Z439	701	.001 *	#	Z439	8572	.002 *	#

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF MONTHS IN POSITION ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	686	.421	#	Z818	8544	.380	
Z404	701	.544		Z404	8647	.371	
Z405	703	.585		Z405	8651	.392	
Z410	701	.881		Z410	8638	.787	
Z411	698	.629		Z411	8634	.555	
Z412	701	.536		Z412	8646	.554	
Z413	695	.008 *	#	Z413	8640	.017 *	#
Z445	698	.758		Z445	8624	.103	#
Z416	702	.510		Z416	8640	.019 *	#
Z819	694	.251	#	Z819	8558	.007 *	#
Z426	703	.645		Z426	8643	.520	
Z428	700	.011 *	#	Z428	8639	.000 *	#
Z431	701	.120	#	Z431	8646	.005 *	#
Z433	702	.270	#	Z433	8652	.005 *	#
Z435	702	.099	#	Z435	8642	.002 *	#
Z436	700	.224		Z436	8623	.002 *	#
Z437	699	.225		Z437	8644	.002 *	#
Z442	702	.176		Z442	8645	.003 *	#
Z424	702	.017 *	#	Z424	8648	.002 *	#
Z434	699	.003 *	#	Z434	8638	.000 *	#
Z439	702	.645		Z439	8639	.000 *	#

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF YEARS IN THE AIR FORCE ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	651	.005 *	#	Z818	8529	.000 *	#
Z404	664	.027 *	#	Z404	8631	.000 *	#
Z405	666	.000 *	#	Z405	8635	.000 *	#
Z410	665	.004 *	#	Z410	8622	.000 *	
Z411	663	.004 *	#	Z411	8619	.000 *	#
Z412	664	.010 *	#	Z412	8630	.000 *	#
Z413	659	.008 *	#	Z413	8625	.000 *	#
Z445	663	.075		Z445	8608	.000 *	#
Z416	665	.011 *	#	Z416	8624	.000 *	#
Z819	657	.001 *	#	Z819	8542	.000 *	
Z426	666	.054 *	#	Z426	8627	.000 *	#
Z428	663	.000 *	#	Z428	8623	.000 *	#
Z431	665	.000 *	#	Z431	8630	.000 *	
Z433	665	.010 *	#	Z433	8636	.000 *	
Z435	665	.000 *	#	Z435	8626	.000 *	#
Z436	663	.000 *	#	Z436	8607	.000 *	
Z437	662	.000 *	#	Z437	8628	.006 *	
Z442	665	.030 *	#	Z442	8629	.000 *	
Z424	665	.000 *	#	Z424	8632	.000 *	#
Z434	662	.261		Z434	8621	.000 *	#
Z439	665	.000 *	#	Z439	8623	.039 *	#

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF MONTHS IN CAREER FIELD ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Prob-ability	Multiple Range Test	Variable	Number of Cases	F Prob-ability	Multiple Range Test
Z818	685	.547		Z818	8549	.349	
Z404	700	.747		Z404	8652	.568	
Z405	702	.548		Z405	8656	.357	
Z410	700	.752		Z410	8643	.515	
Z411	697	.246		Z411	8640	.836	
Z412	700	.689		Z412	8651	.358	
Z413	694	.312		Z413	8645	.078	
Z445	697	.918		Z445	8629	.292	
Z416	701	.766		Z416	8645	.710	
Z819	693	.420		Z819	8563	.241	
Z426	702	.190		Z426	8648	.116	
Z428	699	.718		Z428	8644	.783	
Z431	701	.397		Z431	8651	.435	
Z433	701	.651		Z433	8657	.022 *	
Z435	701	.108		Z435	8647	.057	
Z436	699	.175		Z436	8628	.088	
Z437	698	.085	#	Z437	8649	.095	
Z442	701	.880		Z442	8650	.424	
Z424	701	.319		Z424	8653	.434	
Z434	698	.062	#	Z434	8642	.001 *	
Z439	701	.000 *	#	Z439	8645	.000 *	

* significant at alpha equal to .05
\# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF PERSONNEL CATEGORY ON
THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	679	.063	#	Z818	8126	.000 *	#
Z404	694	.164		Z404	8227	.000 *	#
Z405	696	.002 *	#	Z405	8229	.000 *	#
Z410	694	.026 *	#	Z410	8218	.000 *	#
Z411	691	.008 *	#	Z411	8215	.000 *	#
Z412	694	.210		Z412	8224	.000 *	#
Z413	688	.138		Z413	8219	.000 *	#
Z445	691	.438		Z445	8203	.003 *	#
Z416	695	.089		Z416	8218	.000 *	#
Z819	687	.218		Z819	8145	.000 *	#
Z426	696	.084	#	Z426	8222	.000 *	#
Z428	693	.008 *	#	Z428	8218	.000 *	#
Z431	695	.008 *	#	Z431	8224	.000 *	#
Z433	695	.028 *	#	Z433	8230	.000 *	#
Z435	695	.062	#	Z435	8221	.000 *	#
Z436	693	.420		Z436	8205	.374	
Z437	692	.017 *	#	Z437	8223	.006 *	#
Z442	695	.205		Z442	8226	.000 *	#
Z424	695	.104	#	Z424	8226	.000 *	#
Z434	692	.313		Z434	8216	.000 *	#
Z439	695	.000 *	#	Z439	8219	.000 *	#

* significant at alpha equal .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF ENLISTED RANK ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	178	.956		Z818	4431	.000 *	#
Z404	184	.857		Z404	4486	.001 *	#
Z405	185	.421		Z405	4486	.000 *	#
Z410	185	.577		Z410	4485	.000 *	#
Z411	183	.951		Z411	4478	.001 *	#
Z412	184	.801		Z412	4486	.002 *	#
Z413	183	.852		Z413	4481	.188	
Z445	184	.978		Z445	4479	.746	
Z416	184	.588		Z416	4482	.072	#
Z819	182	.687		Z819	4445	.006 *	#
Z426	185	.503		Z426	4485	.000 *	#
Z428	184	.645		Z428	4487	.000 *	#
Z431	185	.992		Z431	4485	.000 *	#
Z433	184	.397		Z433	4488	.194	
Z435	185	.837		Z435	4483	.859	
Z436	185	.879		Z436	4484	.837	
Z437	183	.778		Z437	4487	.582	
Z442	184	.783		Z442	4486	.139	
Z424	185	.830		Z424	4483	.010 *	#
Z434	183	.411		Z434	4478	.057	#
Z439	185	.957		Z439	4486	.169	

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF OFFICER RANK ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	188	.001 *	#	Z818	2154	.000 *	#
Z404	192	.002 *	#	Z404	2180	.000 *	#
Z405	193	.000 *	#	Z405	2182	.000 *	#
Z410	193	.005 *	#	Z410	2173	.000 *	#
Z411	193	.041 *	#	Z411	2176	.000 *	#
Z412	193	.003 *	#	Z412	2177	.000 *	#
Z413	190	.006 *	#	Z413	2180	.000 *	#
Z445	192	.007 *	#	Z445	2170	.001 *	#
Z416	194	.016 *	#	Z416	2177	.000 *	#
Z819	189	.002 *	#	Z819	2149	.002 *	#
Z426	192	.045 *	#	Z426	2175	.000 *	#
Z428	193	.001 *	#	Z428	2170	.005 *	#
Z431	193	.000 *	#	Z431	2178	.003 *	#
Z433	193	.055	#	Z433	2179	.002 *	#
Z435	192	.000 *	#	Z435	2176	.006 *	#
Z436	190	.000 *	#	Z436	2162	.000 *	#
Z437	192	.000 *	#	Z437	2176	.023 *	#
Z442	193	.040 *	#	Z442	2178	.143	
Z424	193	.000 *	#	Z424	2181	.000 *	#
Z434	192	.289		Z434	2176	.053 *	#
Z439	193	.001 *	#	Z439	2172	.898	

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF CIVILIAN GRADE ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	240	.992		Z818	983	.020 *	#
Z404	245	.893		Z404	993	.020 *	#
Z405	245	.432		Z405	991	.027 *	#
Z410	243	.778		Z410	992	.086	
Z411	242	.886		Z411	992	.005 *	#
Z412	244	.884		Z412	993	.325	
Z413	242	.869		Z413	990	.456	
Z445	242	.893		Z445	989	.171	
Z416	244	.876		Z416	992	.001 *	#
Z819	243	.880		Z819	987	.015 *	#
Z426	245	.947		Z426	993	.000 *	#
Z428	243	.936		Z428	992	.021 *	#
Z431	244	.775		Z431	991	.008 *	#
Z433	245	.432		Z433	993	.000 *	#
Z435	245	.976		Z435	992	.129	
Z436	245	.396		Z436	991	.008 *	#
Z437	244	.890		Z437	992	.572	
Z442	245	.593		Z442	993	.986	
Z424	244	.940		Z424	992	.125	
Z434	244	.781		Z434	993	.000 *	#
Z439	244	.161		Z439	992	.002 *	

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF PROFESSIONAL MILITARY EDUCATION ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	693	.237		Z818	8580	.000 *	#
Z404	708	.028 *	#	Z404	8683	.000 *	#
Z405	710	.030 *	#	Z405	8687	.000 *	#
Z410	708	.212		Z410	8674	.000 *	#
Z411	705	.809		Z411	8671	.000 *	#
Z412	708	.254		Z412	8682	.000 *	#
Z413	702	.423		Z413	8676	.000 *	#
Z445	705	.297		Z445	8660	.000 *	#
Z416	709	.328		Z416	8676	.000 *	#
Z819	701	.181		Z819	8593	.000 *	#
Z426	710	.418		Z426	8679	.000 *	#
Z428	707	.049 *	#	Z428	8675	.000 *	#
Z431	709	.082		Z431	8682	.000 *	#
Z433	709	.355		Z433	8688	.000 *	#
Z435	709	.285		Z435	8678	.000 *	#
Z436	707	.140	#	Z436	8659	.000 *	#
Z437	706	.158		Z437	8679	.000 *	#
Z442	709	.392		Z442	8681	.000 *	#
Z424	709	.174		Z424	8684	.000 *	#
Z434	706	.121		Z434	8673	.000 *	#
Z439	709	.174		Z439	8675	.000 *	#

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF EDUCATION LEVEL ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	685	.227		Z818	8548	.000 *	#
Z404	700	.096	#	Z404	8651	.000 *	#
Z405	702	.333		Z405	8654	.000 *	#
Z410	700	.143	#	Z410	8641	.000 *	#
Z411	697	.204		Z411	8639	.000 *	#
Z412	700	.208		Z412	8649	.000 *	#
Z413	694	.108		Z413	8643	.000 *	
Z445	697	.452		Z445	8627	.002 *	
Z416	701	.526		Z416	8643	.000 *	#
Z819	693	.055	#	Z819	8561	.000 *	#
Z426	702	.094	#	Z426	8646	.000 *	#
Z428	694	.075	#	Z428	8642	.000 *	#
Z431	701	.004 *	#	Z431	8649	.000 *	#
Z433	701	.128		Z433	8655	.000 *	#
Z435	701	.028 *	#	Z435	8645	.000 *	#
Z436	699	.054 *		Z436	8626	.003 *	#
Z437	698	.011 *		Z437	8647	.000 *	#
Z442	701	.083	#	Z442	8648	.000 *	#
Z424	701	.143	#	Z424	8651	.000 *	#
Z434	698	.061	#	Z434	8640	.000 *	#
Z439	701	.000 *	#	Z439	8642	.000 *	#

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF CAREER INTENTIONS ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	632	.002 *	#	Z818	8418	.000 *	#
Z404	647	.012 *	#	Z404	8519	.000 *	#
Z405	649	.000 *	#	Z405	8523	.000 *	#
Z410	647	.004 *	#	Z410	8511	.001 *	#
Z411	644	.005 *	#	Z411	8507	.030 *	#
Z412	647	.014 *	#	Z412	8518	.001 *	#
Z413	641	.017 *	#	Z413	8512	.004 *	#
Z445	644	.014 *	#	Z445	8496	.010 *	#
Z416	648	.002 *	#	Z416	8513	.001 *	#
Z819	640	.023 *	#	Z819	8431	.000 *	#
Z426	649	.036 *	#	Z426	8515	.000 *	#
Z428	646	.058	#	Z428	8511	.000 *	#
Z431	648	.005 *	#	Z431	8518	.000 *	#
Z433	648	.085	#	Z433	8524	.001 *	#
Z435	648	.031 *	#	Z435	8514	.008 *	#
Z436	646	.100		Z436	8495	.006 *	#
Z437	645	.024 *	#	Z437	8517	.008 *	#
Z442	648	.010 *	#	Z442	8517	.003 *	#
Z424	648	.005 *	#	Z424	8520	.003 *	#
Z434	640	.110		Z434	8509	.069	#
Z439	648	.000 *	#	Z439	8511	.001 *	

* significant at alpha equal to .05
# more than one significant subset

ANALYSIS OF VARIANCE FOR EFFECT OF ETHNIC BACKGROUND ON THE PERCEIVED EFFECTIVENESS OF MALE AND FEMALE SUPERVISORS

FEMALES				MALES			
Variable	Number of Cases	F Probability	Multiple Range Test	Variable	Number of Cases	F Probability	Multiple Range Test
Z818	664	.369		Z818	8230	.000 *	#
Z404	679	.771		Z404	8330	.000 *	#
Z405	681	.560		Z405	8334	.000 *	
Z410	679	.170		Z410	8322	.009 *	
Z411	676	.160		Z411	8319	.000 *	#
Z412	679	.321		Z412	8329	.004 *	
Z413	673	.210		Z413	8324	.032 *	
Z445	676	.241		Z445	8308	.160	
Z416	680	.253		Z416	8325	.000 *	
Z819	674	.088		Z819	8328	.006 *	#
Z426	681	.039 *		Z426	8245	.000 *	#
Z428	678	.181	#	Z428	8322	.010 *	
Z431	680	.150		Z431	8329	.001 *	#
Z433	680	.096		Z433	8335	.002 *	
Z435	681	.070		Z435	8325	.113	
Z436	679	.022 *		Z436	8308	.391	
Z437	678	.228		Z437	8327	.561	
Z442	680	.091		Z442	8328	.102	
Z424	680	.035 *		Z424	8331	.000 *	#
Z434	678	.578		Z434	8320	.005 *	#
Z439	680	.023 *		Z439	8323	.870	

* significant at alpha equal to .05
# more than one significant subset

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