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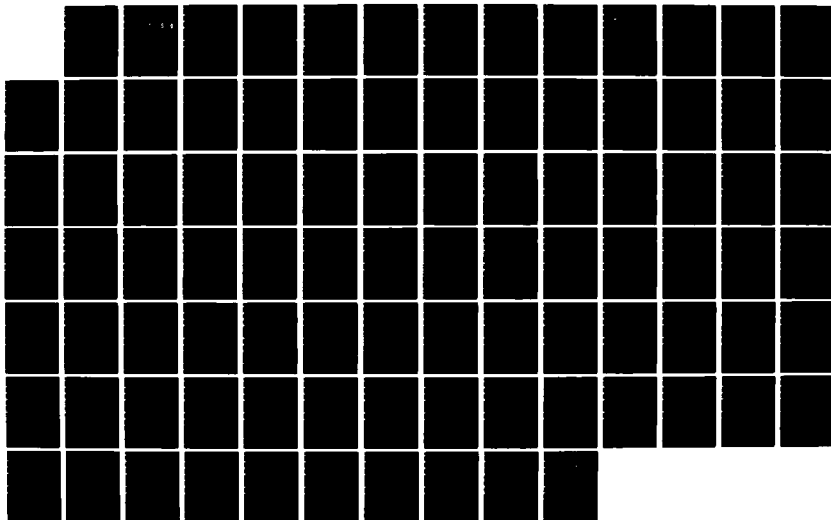
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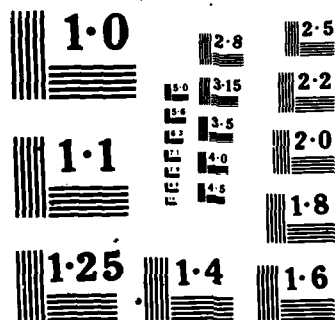
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STUDENT REPORT

JOB ATTITUDES OF AIR FORCE
SYSTEMS COMMAND PERSONNEL

MAJOR GREGORY G. WAEBER

86-2620

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TITLE JOB ATTITUDES OF AIR FORCE SYSTEMS COMMAND PERSONNEL

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

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EXECUTIVE SUMMARY

Part of our College mission is distribution of the students' problem solving products to DoD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

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REPORT NUMBER 86-2620

AUTHOR(S) MAJOR GREGORY G. WAEBER, USAF

TITLE JOB ATTITUDES OF AIR FORCE SYSTEMS COMMAND PERSONNEL

I. Purpose: To compare demographic characteristics and job attitudes of Air Force Systems Command (AFSC) officers, enlisted personnel, and civilian employees with those of corresponding personnel categories in the total Air Force. To analyze the results of the comparisons by concentrating on significant differences and, based on the analyses, to develop recommendations for AFSC commanders and functional managers.

II. Problem: Employee job attitudes have been linked to productivity and career intentions in many organizational settings. The data base maintained by the Leadership and Management Development Center (LMDC), Maxwell AFB, Alabama, is the focal point for Air Force personnel job attitude research. The LMDC data gathering and research function will no longer be funded after FY 86. There is a need to preserve the job attitude results in a useable format so that information on the job attitudes of Air Force people remains available to commanders and others. The present paper helps meet that need.

III. Data: Comparisons of responses of AFSC personnel to those of other Air Force members are made using data gathered with the Organizational Assessment Package (OAP). The OAP is a job attitude survey developed jointly by the Air Force Human Resources Laboratory and LMDC. Demographic

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comparisons are provided between responses of almost 9,000 AFSC personnel and approximately 100,000 other Air Force personnel. Attitudinal comparisons are made based on 93 items on the OAP survey. These 93 items are grouped into 27 job attitude factors. Factors showing significant differences between AFSC and the data base are identified and analyzed.

IV. Conclusions: Significant attitudinal differences exist between AFSC personnel and their data base counterparts. Differences are found in all personnel categories (officers, enlisted, and civilians). AFSC officers responded overall less positively than the other officers. AFSC enlisted personnel responded much more positively than their peers, and AFSC civilians responded slightly more positively than the data base civilians. There were four factors to which all three AFSC personnel categories responded more favorably than their counterparts.

The mean responses of the AFSC officers differ from the data base means on 19 of the 21 factors. The AFSC officers' responses were less positive on 15 of the 19 significantly different factors. They responded less positively to factors measuring the following: Job Performance Goals, Task Characteristics, Job Related Training, Skill Variety, Task Identity, Task Significance, Job Feedback, Job Motivation Index, Management and Supervision, Supervisory Communications Climate, Organizational Communications Climate, Pride, Advancement/Recognition, Work Group Effectiveness, and General Organizational Climate. Their more positive responses were to factors measuring Task Autonomy, Work Repetition, Desired Repetitive Easy Tasks, and Work Support.

The responses of AFSC's enlisted personnel were overwhelmingly more positive than their data base counterparts. AFSC enlisted personnel responded more positively to factors measuring the following: Task Characteristics, Task Autonomy, Desired Repetitive Easy Tasks, Task Significance, Job Feedback, Need for Enrichment, Job Motivation Index, Work Support, Management and Supervision, Organizational Communications Climate, Pride, Work Group Effectiveness, Job Related Satisfaction, and General Organizational Climate. Only in the Advancement/Recognition factor did AFSC enlisted personnel respond less positively than their data base counterparts.

The mean responses of AFSC's civilian personnel were significantly different from the data base civilians on 16 of the 21 factors. The AFSC civilians responded more positively on the following nine factors: Task Autonomy, Work Repetition, Desired Repetitive Easy Tasks, Need for Enrichment, Work Support, Management and Supervision, Supervisory Communica-

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tions Climate, Advancement/Recognition, and Work Group Effectiveness. Their responses were less positive on the following seven factors: Job Performance Goals, Task Characteristics, Task Identity, Task Significance, Job Feedback, Pride, and Job Related Satisfaction.

V. Recommendations: AFSC commanders and supervisors should take advantage of their personnel's desires for challenge and growth. They should provide training and experience opportunities that lead to positions with growth potential and increased job enrichment. Supervisors should strive to improve the employee's feelings of task significance and pride. Supervisors should ensure that the employees are aware of their roles in the organization and of the importance of the organization's mission. Supervisors of enlisted personnel should encourage them by more job enrichment and increased dialogue.

Chapter One

INTRODUCTION

The impact of job attitudes on employee productivity is an area frequently studied and analyzed by businesses and social researchers. The Air Force, too, is concerned with the job attitudes of its officers, enlisted personnel, and civilian employees. This concern led the Air Force to emphasize job satisfaction and member motivation with the aim of producing satisfied individuals performing more efficiently and effectively (Crooch, 1976). The benefits derived from job attitude improvements should have tangible work-related results and support United States national security interests via a stronger Air Force. The present paper contributes to the Air Force job attitude research program by examining attitudes within one Air Force major command, Air Force Systems Command (AFSC).

Several steps are taken in analyzing the job attitudes of AFSC personnel. Survey data provided through the United States Air Force (USAF) Organizational Assessment Package (OAP) are analyzed and the results are provided for AFSC commanders and resource managers. All data are from the OAP data base maintained by the USAF's Leadership and Management Development Center (LMDC) at Maxwell Air Force Base, Alabama. The results highlight command strengths and potential problem areas indicated by AFSC survey respondents. The responses of AFSC personnel are compared to responses of personnel in other Air Force commands to provide a perspective for the analysis. Responses from officers, enlisted personnel, and civilians are

examined separately. Survey results from approximately 9,000 AFSC personnel are compared to those from almost 100,000 personnel in other commands. The OAP and LMDC's roles in the data collection and analysis are described in detail in Chapter Three of this report.

Before discussing the detailed goals of the present research, some background discussion is in order. According to the Air Force Magazine (1985, p. 81), AFSC is the 7th largest of the 13 major commands. Its 56,254 total personnel (assigned strength as of 30 September 1984) is 51 percent military and 49 percent civilian. Although they comprise only 7.0% of the total USAF population, AFSC people administer 38% of the total USAF budget. The unique civilian/military manpower mix, large fiscal responsibilities, and the AFSC mission, "to advance aerospace technology, apply it to operational aerospace systems development and improvement, and acquire qualitatively superior, cost-effective, and logistically supportable aerospace systems," make AFSC an atypical command. Duty locations ranging from command headquarters in Washington, D.C., to command laboratories, and to the facilities of major U.S. defense contractors throughout the country also serve to set AFSC personnel apart. These command characteristics help shape the job attitudes of AFSC personnel.

The job attitudes of all working personnel, Air Force and others, are important to organizational climate and mission accomplishment. These attitudes include the employees' feelings about the job, co-workers, the supervisor, and more. Job attitudes also impact career intentions and dedication to mission accomplishment (Thompson, 1980; Brock, 1969). As the USAF's largest employer of scientists and engineers, AFSC must be sensitive to the professional attitudes of such technical people. The special needs

of these professionals have been studied many times (e.g., Dullighan, Riedel, & Thompson, 1973; Friedlander & Walton, 1964).

The present research does not concentrate on the specific category of technical people. It addresses the people of AFSC as a whole. The attitudes of AFSC technical people will be considered to the extent that they contribute to the overall percentage of total survey respondents.

Because the LMDC data gathering and storage system will no longer be funded after FY 86, it is especially important that results of the OAP be preserved and provided to AFSC leaders. To that end, officials at LMDC have sponsored the present study. The following four goals are pursued:

1. to conduct a review of relevant background research and organizational behavior literature;
2. to compare OAP-measured demographic characteristics and job attitudes of AFSC officers, enlisted personnel, and civilian employees with the attitudes of corresponding personnel in the other Air Force commands;
3. to analyze significant attitudinal differences between AFSC and other personnel; and
4. to recommend, to AFSC commanders and functional resource managers, ways to capitalize on attitudinal strengths and compensate for attitudinal weaknesses.

The report addresses each of these goals. First, the literature review and research background material are summarized in Chapter Two. Then Chapter Three provides details on the OAP survey instrument, data collection, and methods of data analysis. The following chapter (Chapter Four), presents the demographic and attitudinal results. Chapter Five provides the analysis of the results. Finally, Chapter Six lists conclusions and recommendations.

Chapter Two

LITERATURE REVIEW

Job attitude data on many USAF members have been collected by LMDC (Mahr, 1982; Short, 1985; Short & Hamilton, 1981). Past research has demonstrated the usefulness of the OAP for attitude analysis (Reed, 1979) and for the comparison of major air commands (Dirnberger, 1980). But what is to be gained through the OAP studies of job satisfaction attitudes? Some argue that the study of job satisfaction is important for at least several reasons:

1. To understand the sources of satisfaction and dissatisfaction is important in and of itself for humanitarian reasons.
2. Managers and policy makers believe it is important.
3. It enables interested theoreticians to study the dynamics of human motivation.
4. The study of satisfaction with the job, and the determination of such attitudes, would be expected to contribute to the broader psychology of attitudes and human motivations. (Tuttle & Hazel, 1974, p. 21)

These are good and sufficient general reasons for studying job attitudes. However, within the Air Force there are even more practical reasons. Improvements in job related attitudes aimed at retention and productivity increases are obvious ones. Job attitudes are linked to the retention decisions of Air Force personnel in many studies (Crooch, 1976; Dirnberger, 1980; Edwards, 1978; Patterson, 1977). Studies also show that attitudes and productivity are affected by supervisory communication practices (Wilkerson & Short, 1983; Wilkerson, Short, Vermilya, & Christ, 1980). Productivity increases have also been linked to group goal-setting

activities (Weiss, 1980).

The present research is the first time that the entire OAP data base has been used to compare job attitudes of AFSC personnel to the rest of the USAF. Because of the lack of previous comparative studies, the present review first concentrates on general organizational motivation and job satisfaction theories. The second portion more closely relates to a review of job attitude research in job situations similar to the AFSC environment.

Review of Theories

The following theories were reported to have the greatest potential for USAF job satisfaction research (Tuttle & Hazel, 1974). These theories were chosen from an extensive list because they appear more relevant to the military setting than the others examined. The first of five theories to be examined is Herzberg's Two-Factor Theory.

Herzberg's Two-Factor Theory

Herzberg's major ideas were that workers were motivated (satisfied) by the content of work (intrinsically) and that inadequate extrinsic factors (i.e. working conditions, relationships) acted primarily as dissatisfiers. Herzberg claimed that his theory had universal validity. Weaknesses in method and theory brought criticism of Herzberg's model (Vroom, 1964; Whitsett & Winslow, 1967). Friedlander (1965) criticized Herzberg's absolute motivation model. Some studies of intrinsic and extrinsic motivation concluded that white-collar workers are intrinsically motivated and blue-collar workers more extrinsically oriented (Friedlander, 1965; Seeman, 1967; Turner & Lawrence, 1965). In 1975, an empirical test reported that neither type reward is the primary determinant of job satisfaction. A flexible approach that situationally analyzes the needs of the workers, the

organization, and the work environment was determined best (Reif, 1975).

Equity Theory

The basic assumption of the equity theory is that individuals have an expectation of a fair reward level which they should receive from social exchange (work). If rewards for exchange are not considered equitable then unpleasant feelings (attitudes) are generated (Vroom, 1964; Adams, 1965).

Instrumentality-Expectancy Theories

These theories are based on the belief that a job within an organization has a range of acceptable behavior. The incumbent in the job has desires to obtain some work-related outcomes, to avoid others, and is indifferent to still more. The theory attempts to explain the process affecting the individual's choices between alternatives. Job motivation concentrates on the individual's anticipated satisfaction with various outcomes (Graen, 1969; Porter & Lawler, 1968; Vroom, 1964).

Cornell Studies in Satisfaction

These studies are very data-oriented and provide a job satisfaction theory building tool. They are best summed by the following, "It is, therefore, the interrelationships of objective factors of the job, of individual capabilities and experiences, of alternatives available in the company and the community, and of the values of the individual that can be expected to predict satisfaction and performance" (Smith, Kendall, & Hulin, 1969, p. 165).

Need Fulfillment Theory

This theory is based on Maslow's need hierarchy (1943), Alderfer's Existence, Relatedness, and Growth Theory (1969), and the Theory of Work Adjustment (Dawis, England, & Lofquist, 1964). The need fulfillment approach

to job satisfaction concentrates on the relationship between the needs of the individual and the extent to which the job satisfies those needs. An individual is satisfied to the extent that the organization meets his or her needs.

For the interested reader, Tuttle and Hazel (1974) offer a detailed review of military research on job satisfaction/motivations theory. More recent studies concerning changing attitudes (Wood, 1980) and job satisfaction among youths in military and civilian work settings (Blair & Phillips, 1983) validate the military's continuing interest in job attitudes. Also, the existence of LMDC, the Army's Organizational Effectiveness Program, and efforts by the Office of Naval Research show the military services' desire to tap this potential resource.

Attitude Research in Environments Similar to AFSC

On the less theoretical side, a review of literature specifically concentrating on AFSC or AFSC-type subjects was conducted. The impact of job attitudes on satisfaction and productivity improvement was demonstrated in several AFSC System Program Offices (SPO). A study of over 1,000 personnel concluded that top echelon managers are more job-satisfied than are their subordinates. The conclusions of the study directed the supervisor's attention to the worker's task identity (being able to carry out a task from start to finish) and task significance (work importance) areas. These areas were identified as needing more attention (Rigsbee & Roof, 1975).

As the Air Force's largest employer of scientists and engineers, AFSC must be concerned with the satisfaction and productivity of its technical personnel. A study of over 600 technical employees at Westinghouse's

Nuclear Technology Division investigated the importance of matching white-collar skills to the work required. The company systematically matched the job with the person best equipped to do it. Impressive results in white-collar productivity and employee satisfaction were reported (Hoop & Wolzansky, 1983). Another study related to Air Force technical personnel (officers only) concluded that their career decisions were significantly affected by the technical competence of their supervisors (Thompson, 1980). Thompson concluded that less than competent technical supervision discouraged a technical officer from staying in the Air Force and thus increased his or her mobility desire.

The mobility patterns of the scientists and engineers in America should also be of interest to AFSC leaders and those charged with the recruitment and retention of personnel with these skills. "A study of the mobility patterns of technical employees concluded that mobility between sectors (private industry, government, academia, and nonprofit) is largely a process for the 'nonelite,' contradicting a popular image normally associated with such movement" (Doreian & Hummon, 1980, p. 322). This same study also concluded that mobile technical employees are less committed to current organizational arrangements.

A relationship between organizational commitment and retention decisions was studied by Peters, Bhagat, & O'Conner (1981). They concluded that job retention decisions were more strongly affected by organizational commitment than by job satisfaction. The importance of improving employee commitment can be inferred from this study. Another study has concluded that changing demographics (American workers are younger, with more women and minorities) are resulting in less organizational commitment (Goodstein,

1983). "In the past, persons were tied to the organization by their commitments to their families and by their loyalties to the organization, but many persons now are less family oriented, and organizational loyalty is seen as being less important than personal loyalty and autonomy" (Goodstein, 1983, p. 206).

The importance of supervisory feedback and goal-setting on employee motivation and performance has been recognized many times (Greller & Herold, 1975; Ilgen, Fisher, & Taylor, 1979; Pavett, 1983; Weiss, 1980). Communications is important in all organizations and is the most direct link between subordinates and superiors.

In the Research and Development (R&D) environment a very specialized communication role exists. Three government R&D laboratories were studied to determine the motivation of individuals known informally as "gatekeepers" or "key communicators" (Chakrabarti & O'Keefe, 1977). The position is held by members who informally become the preferred channel for information in the R&D environment. These individuals were found to be motivated by a variety of personal reasons including, personal satisfaction, intellectual pleasure, interest in helping others, and sense of status. No formal organizational reward, such as a pay increase, accompanied the informal status. The authors concluded that these individuals exist in all R&D laboratories. Their existence in AFSC labs is, therefore, assumed.

This literature review and summary of research background material pointed out a wide range of variables that influence job satisfaction and employee motivation. It concentrated on job satisfaction theory and specific research in AFSC-type environments. The next chapter provides details on the OAP survey instrument, data collection, and methods of data analysis.

Chapter Three

METHOD

Instrumentation

The OAP survey was jointly developed by the Air Force Human Resources Laboratory (AFHRL) and LMDC. It is a questionnaire consisting of a computer-scored response sheet and a 109-item booklet. The questionnaire contains 16 demographic items and 93 attitudinal items. Each of the items can be found in Appendix A (OAP Survey: Factors and Variables). Responses to the attitudinal items are made on a scale of 1 to 7. A response of "1" usually indicates a strong dissatisfaction or disagreement with the specific statement or item. Correspondingly, a response of "7" usually indicates a strong positive feeling.

The survey's 109 items are divided into seven modules. The first module is the background information section and contains 16 demographic items about the individual respondent. The next module, which is the first attitudinal one, concerns the job inventory. Respondents are presented 34 items related to their job's complexity, job goals, and similar issues. The third module (job desires) contains seven items and covers desired job characteristics. Supervision is the focus of the fourth module. These 19 items measure the leadership and managerial traits of the respondent's supervisor. The fifth module (work group effectiveness) deals with the quality and quantity of the work produced by the respondent's work group.

This module contains five items. Next is a 19-item module (organizational climate) which concerns the respondent's relationship with the squadron or staff agency. Finally, the job satisfaction module deals with the work environment and consists of nine items. The OAP was validated as a data gathering instrument in several studies (Hightower & Short, 1982; Short & Hamilton, 1981). Individual factor analysis results of the OAP development are discussed in Hendrix and Halverson (1979a; 1979b).

The OAP survey results, for each unit visited by LMDC's management consultants, become part of a cumulative data base used to study Air Force systemic issues. This active data base contains over 100,000 initial survey administration records. These data were collected from 1 October 1981 through 16 September 1985. Records of survey data collected prior to 1 October 1981 are maintained in a separate inactive file.

Data Collection

All data in the present report were gathered as a part of LMDC's management consultation program. The OAP questionnaire was administered only where unit commanders had formally requested a consultation project. All unit personnel were asked to complete OAP surveys during several group survey sessions. Participants were promised individual anonymity. No attempt was made to survey unit members unavailable for the normally scheduled group sessions. The data gathering process normally required about one week. The process included interviews, administering the survey, and other organizational data gathering activities. From an Air Force-wide perspective, the sample is an "opportunity sample" or a "sample of convenience." However, since many such "mini-censuses" were collected, the cumulative data base is thought to represent attitudes of a significant

portion of the Air Force.

The data gathering phase concluded with the LMDC team's return to Maxwell AFB. At Maxwell, the data were analyzed and the team prepared for their return or tailored visit to the surveyed unit. This tailored visit focused on the unit's OAP responses. During the visit the team attempted to validate survey results and then reported on the perceived strengths and weaknesses at all organizational levels. Areas such as supervision, communications, career intentions, and a range of leadership and management issues were stressed. Team members also conducted workshops and seminars and upon request would work with individual supervisors.

Subjects

The OAP responses of AFSC personnel were compared to responses of all other personnel in the active LMDC OAP data base. The AFSC group consists of officer, enlisted, and Department of the Air Force civil service personnel (civilians). Sample sizes for the comparison groups are indicated in Table 1. The total active data base contains responses from surveys administered at 57 different bases or operating locations. One hundred and two different organizations were surveyed. Personnel from AFSC responded on 26 different occasions and from 9 different locations.

Table 1

Sample Sizes of Comparison Groups

	Officers	Enlisted	Civilians
AFSC	2,012	2,034	4,850
Data Base	10,698	68,513	20,077

Procedures

Two separate comparisons were used to analyze the OAP data. The first comparison, "Analysis of Demographic Information," is provided to characterize the groups. The second comparison, "Attitudinal Comparison of AFSC Personnel to the LMDC Data Base," compares mean attitude scores of the groups by personnel category.

The letter, n, shown throughout the tables of this report, is the number of valid responses in the data base for the specific area being examined. Interested readers are directed to the SPSSX User's Guide (1983) for an explanation of the statistical analyses used.

Comparison 1, Analysis of Demographic Information

For this analysis, the LMDC data base was divided into two groups. Group 1 consisted of AFSC responses and Group 2 of all remaining responses in the active LMDC data base. The two groups were further subdivided into officer, enlisted, and civilian personnel categories.

Comparison 2, Attitudinal Comparison of AFSC Personnel to the Data Base

The attitudinal responses of each of the AFSC personnel categories were compared to the responses of each of the corresponding categories in the data base. Two-tailed t-tests, using the $\alpha = .05$ significance level (i.e., 95% confidence level), were performed to distinguish attitudinal differences between groups within each personnel category. An F-test was used to test the assumption of equal variances. When necessary, t-tests for unequal variance groups were used. These procedures were used to determine areas where AFSC and data base responses varied significantly. Data were compared in four separate categories:

1. Work Itself. This category is concerned with the task

properties and environmental conditions of the job. It measures perceptions of task characteristics.

2. Job Enrichment. This category measures the degree to which the job itself is interesting, meaningful, challenging, and responsible.

3. Work Group Process. This category assesses the effectiveness of supervisors and the process of accomplishing the work.

4. Work Group Output. This category measures task performance, group development, and effects on group members. It also assesses the quality and quantity of task performance, the member's pride, and job satisfaction.

This concludes Chapter Three and the discussion of the OAP survey, data collection, comparison procedures, and a brief description of the subjects. The next chapter (Chapter Four) provides the results of the demographic and attitudinal comparisons between the AFSC and other Air Force groups.

Chapter Four

RESULTS

Summary results of the data provided by Air Force members to the LMDC survey teams are reported in this chapter. Results of the demographic and attitudinal comparisons between AFSC personnel and those in other commands are included here and/or in Appendices B and C.

Analysis of Demographic Information

A comparison of demographic information between AFSC and data base responses reveals several trends. Marked differences are evident in stability, formal education, and supervisory responsibilities. Complete demographic summary information is included in Appendix B, Tables B-1 through B-21.

All three AFSC personnel categories indicated greater stability, in daily work shifts and time on station, than their data base counterparts. Greater work shift stability in AFSC is evidenced in the fact that 85% of AFSC personnel worked regular day shifts, while only 65% of the other Air Force personnel worked this shift (Table B-17). All AFSC personnel show greater stability of location (indicated by greater than 36 months on station) than other Air Force personnel. In this comparison, 23% of AFSC officers have more than 36 months on station compared to only 16% of the data base officers. The same trend existed in enlisted personnel (30% versus 17%) and civilians (68% versus 64%). In a comparison of months in

present position (Table B-7), 56% of the AFSC officers indicated at least 12 months in their current position compared to 48% for other officers. The responses of AFSC enlisted personnel and civilian employees are very similar to the data base responses. Another trend is evident in the area of formal education.

The formal education patterns of AFSC personnel (all categories) show marked differences from the data base responses (Table B-12). In a comparison of highest formal education level attained, AFSC trends are higher across-the-board. Fourteen percent of AFSC officers (survey respondents) possess doctoral degrees compared to 7% of the data base group. Twenty-three percent of AFSC's enlisted personnel report greater than two years of college versus 16% of the data base. Twenty-eight percent of AFSC's civilian employees report bachelor's degrees while only 12% of the other civilians surveyed by LMDC have their degrees. No similar trend exists in the Professional Military Education responses (Table B-13).

Supervisory opportunity and responsibility show a different trend. The data base personnel in all categories report greater supervisory opportunities. This is indicated by the lower percentages of data base personnel reporting that they are not supervisors (59% versus 71% for AFSC) and the greater percentages of data base personnel reporting larger groups supervised (Table B-14). A comparison of the percentage of supervisors of at least four people reveals that 38% of the data base officers versus 29% of AFSC's fit this category. Other checks reveal 19% of data base enlisted personnel supervise at least four versus only 14% for AFSC enlisted personnel. The corresponding figure for data base civilians is 28% versus 14% for their AFSC counterparts. This same trend is shown in Table B-15

which depicts percentages of personnel who write performance appraisals.

In Chapter One, AFSC's unique military/civilian mix (51% military/49% civilian) was mentioned. Table B-1 of Appendix B shows that the OAP survey sample is slightly high in the AFSC civilian representation (54%). The trend of AFSC's greater officer-to-enlisted ratio (1:1 for AFSC versus 1:7 for data base) and the high civilian percentage in AFSC compared to the data base (25%) is also evident.

Attitudinal Comparison of AFSC Personnel to the Data Base

Significant attitudinal differences between AFSC and data base personnel are found in each of the four major organizational behavior areas. The mean responses of the AFSC officers differ significantly from the data base means on 19 of the 21 factors. The responses of the AFSC enlisted personnel and civilian employees are significantly different from their corresponding categories on 15 and 16 factors, respectively. These factors were predominately less positive for the AFSC officers (15 to 4), overwhelmingly more positive for the AFSC enlisted personnel (14 to 1), and slightly more positive for the AFSC civilians (9 to 7). Tables comparing all of the OAP factor scores between AFSC personnel and the data base personnel are located in Appendix C. The following table (Table 2) summarizes factors with significant differences between AFSC and data base personnel.

AFSC Officers versus Data Base Officers

In the area of the "Work Itself," the AFSC officers are significantly different from the data base officers on all six of the factors (Table C-1). Their mean responses are more positive on three of the factors and less

Table 2
Significantly Different Factors

AREA FACTOR	OFFICER	ENLISTED	CIVILIAN
Work Itself			
(810) Job Performance Goals	(-)		(-)
(812) Task Characteristics	(-)	(+)	(-)
(813) Task Autonomy	(+)	(+)	(+)
(814) Work Repetition	(+)		(+)
(816) Desired Repetitive Easy Tasks	(+)	(+)	(+)
(823) Job Related Training	(-)		
Job Enrichment			
(800) Skill Variety	(-)		
(801) Task Identity	(-)		(-)
(802) Task Significance	(-)	(+)	(-)
(804) Job Feedback	(-)	(+)	(-)
(806) Need For Enrichment		(+)	(+)
(807) Job Motivation Index	(-)	(+)	
Work Group Process			
(805) Work Support	(+)	(+)	(+)
(818) Management and Supervision	(-)	(+)	(+)
(819) Supervisory Comm. Climate	(-)		(+)
(820) Organizational Comm. Climate	(-)	(+)	
Work Group Output			
(811) Pride	(-)	(+)	(-)
(817) Advancement/Recognition	(-)	(-)	(+)
(821) Work Group Effectiveness	(-)	(+)	(+)
(822) Job Related Satisfaction		(+)	(-)
(824) General Org. Climate	(-)	(+)	

(-) - indicates AFSC response less positive than data base

(+) - indicates AFSC response more positive than data base

positive on the other three. The more positive responses deal with Task Autonomy (Factor 813) and the favorable match between their lower desire for repetitive tasks (Factor 816) and their perception that their jobs are, in fact, less repetitive than those of the data base officers (Factor 814). Table C-1 reveals three factor score comparisons where AFSC officers' scores are less positive than the scores of the data base officers: Task Characteristics (Factor 812), Job Performance Goals (Factor 810), and Job Related Training (Factor 823).

In the "Job Enrichment" area, AFSC officers' ratings were lower than the data base on all five of the significantly different factor score comparisons (Table C-2). These factors include Skill Variety (Factor 800), Task Identity (Factor 801), Task Significance (Factor 802), and Job Feedback (Factor 804). The largest mean difference between the AFSC and data base responses is for Task Significance, which measures the respondent's feelings about the importance of the job.

The negative trend continues in the area of "Work Group Process" where the mean responses of AFSC officers are significantly lower than the data base means on three of the four factors (Table C-3). The only more favorable AFSC rating is in Work Support (Factor 805). The three less positive ratings deal with two supervision factors (Factor 818 and Factor 819) and the perception of the organization's communication environment (Factor 820).

The negative trend is also evident in the "Work Group Output" area. Significant differences occur in four of the five factors (Table C-4). The AFSC responses are less positive than the data base in each of the four comparisons. These less positive attitudes appear in factors covering Pride

(Factor 811), General Organizational Climate (Factor 824), Work Group Effectiveness (Factor 821), and awareness of advancement and recognition (Factor 817). The predominantly less positive attitudes of the AFSC officers are in marked contrast to those of the AFSC enlisted personnel.

AFSC Enlisted Personnel versus Data Base Enlisted Personnel

The more positive responses of AFSC enlisted personnel dominate all four of the survey areas. Their responses in the "Work Itself" area are significantly higher on three of the six factors (Table C-5). AFSC enlisted personnel are more satisfied with their Task Characteristics (Factor 812) and Task Autonomy (Factor 813) than are the data base enlisted personnel. AFSC enlisted personnel's responses indicate that they are less desirous of repetitive tasks than are the data base enlisted personnel (Factor 816).

In the "Job Enrichment" area AFSC enlisted personnel were more positive on all four of the significantly different factor score comparisons (Table C-6). Their responses indicate that they consider their jobs more important (Factor 802), feel they can ascertain their performance results better (Factor 804), and have a stronger desire for a challenging job than the data base group (Factor 806).

The positive trend continues in the comparison of "Work Group Process" responses. AFSC enlisted personnel respond more positively in all three of the significantly different factor score comparisons (Table C-7). Their responses indicate fewer hindrances to job performance than for the data base group (Factor 805). They also rate Management and Supervision (Factor 818) and the Organizational Communications Climate (Factor 820) more positively than the data base group.

The area of "Work Group Output" contains five factors and for each of them the two groups are significantly different (Table C-8). The only case of a less positive response by AFSC enlisted personnel is found here. They feel less prepared than the data base enlisted personnel for advancement and recognition (Factor 817). This factor also measures their feelings of being prepared for promotion. Their ratings of Pride (Factor 811), Job Related Satisfaction (Factor 822), General Organizational Climate (Factor 824), and Work Group Effectiveness (Factor 821) are all significantly higher than data base ratings of the same factors. The overwhelmingly positive responses of AFSC enlisted personnel do not carry-over to the comparison of the command's civilian employees with the data base responses. In general, the OAP responses of the AFSC civilians are only slightly more positive than their comparative data base civilian group.

AFSC Civilians versus Data Base Civilians

In the "Work Itself" area, AFSC civilian employees' ratings are significantly different from the data base civilians' on five of the six factors (Table C-9). For two of these factors, AFSC responses are less positive than the data base. They are Job Performance Goals (Factor 810) and Task Characteristics (Factor 812). AFSC civilians had more positive responses on Task Autonomy (Factor 813) and two factors involving work repetition (Factors 814 and 816).

AFSC civilians report a much less positive attitude in the "Job Enrichment" area. Significant differences exist in the mean responses for four of the five factors (Table C-10). The only more positive AFSC response is for the factor involving the respondent's desire for a meaningful job with opportunities for growth, independence, and variety (Factor 806). Less

positive AFSC responses occur for factors involving Task Identity (Factor 801), Task Significance (Factor 802), and Job Feedback (Factor 804).

In contrast, AFSC civilians are more positive than the data base civilians in the "Work Group Process" area. Significantly more positive differences occur on three of the four factors (Table C-11). These include both supervision factors (Factors 818 and 819) and Work Support (Factor 805).

The four significantly different responses in the "Work Group Output" area (Table C-12) are split equally. The two more positive factors for AFSC civilians are Work Group Effectiveness (Factor 821) and feeling of awareness of advancement and preparedness for promotion (Factor 817). The less positive AFSC responses are in Pride (Factor 811) and Job Related Satisfaction (Factor 822).

Factors Where All AFSC Personnel Categories
Were More Positive than the Data Base

An overall review of the OAP results shows several patterns. First, the three AFSC personnel categories never unanimously responded less favorably than their corresponding data base groups. They did, however, all respond more favorably on 4 of the 21 factors. Favorable unanimity was reported in factors related to Work Support (Factor 805), Task Autonomy (Factor 813), Need for Enrichment (Factor 806), and the lack of desire for repetitive or easy tasks (Factor 816). Detailed information on each of the factors, as well as general information and definitions are contained in Appendix A. Tables 3 through 6 show summaries of the unanimously positive AFSC responses.

Table 3
Summary for Factor 805 (Work Support)

Personnel Category	Mean Response	Standard Deviation	Significantly Different
AFSC Officers	4.65	1.03	YES
Other Officers	4.54	1.10	
AFSC Enlisted	4.67	1.11	YES
Other Enlisted	4.53	1.12	
AFSC Civilians	4.72	1.05	YES
Other Civilians	4.66	1.12	

Table 4
Summary for Factor 813 (Task Autonomy)

Personnel Category	Mean Response	Standard Deviation	Significantly Different
AFSC Officers	4.64	1.29	YES
Other Officers	4.54	1.36	
AFSC Enlisted	4.04	1.41	YES
Other Enlisted	3.82	1.42	
AFSC Civilians	4.68	1.31	YES
Other Civilians	4.56	1.36	

Table 5
Summary for Factor 806 (Need for Enrichment)

Personnel Category	Mean Response	Standard Deviation	Significantly Different
AFSC Officers	6.12	0.84	NO
Other Officers	6.08	0.87	
AFSC Enlisted	5.70	1.17	YES
Other Enlisted	5.47	1.24	
AFSC Civilians	5.90	1.05	YES
Other Civilians	5.65	1.21	

Table 6

Summary for Factor 816 (Desired Repetitive/Easy Tasks)

Personnel Category	Mean Response	Standard Deviation	Significantly Different
AFSC Officers	2.39	1.05	YES
Other Officers	2.49	1.05	
AFSC Enlisted	3.10	1.38	YES
Other Enlisted	3.22	1.42	
AFSC Civilians	2.72	1.24	YES
Other Civilians	3.18	1.42	

The discussion to follow in Chapter Five examines these unanimously positive responses and also provides an analysis of other results contained in Chapter Four.

Chapter Five

DISCUSSION

This chapter concentrates on the factors where comparisons between AFSC and data base responses resulted in significant differences. The four areas of organizational function (Work Itself, Job Enrichment, Work Group Process, and Work Group Output) serve as the framework to discuss these responses. Particular emphasis is spent discussing trends and implications of the AFSC responses. The first area discussed is the "Work Itself."

The Work Itself

Two of AFSC's unanimously more positive factors (i.e., where AFSC officers, enlisted, and civilian personnel all rate the factor higher than their comparison group) are found in this area. The AFSC responses to Task Autonomy (Factor 813) and lack of desire for repetitive tasks (Factor 816) indicated a more positive feeling than their data base contemporaries. The positive responses to Factor 813 mean that the AFSC personnel feel greater freedom to decide, to schedule, and to do the job as they see fit. One possible explanation for their responses might be the relative lack of checklist or technical order tasks in the AFSC environment compared to the rest of the Air Force. Checklist type activities would tend to negatively distort Task Autonomy responses. The perceived autonomy of AFSC personnel may actually be helpful in dealing with the dynamic problems and challenges of weapon system test and development. A potential problem could result if

too much autonomy resulted in lack of direction or planning. Task autonomy was considered by many researchers to be an element of intrinsic job motivation. The "autonomy" feelings of all categories of AFSC personnel show a potential for intrinsic motivation that is also seen in their unanimously lower desire for repetitive tasks (Factor 816).

A potential demotivator for intrinsic motivation is a repetitive or easy job. All AFSC personnel categories were less desirous of repetitive or easy tasks (Factor 816) than were their data base counterparts. Their responses also indicated that AFSC officers and civilians actually performed less repetitive tasks than the data base. Personal preferences, therefore, compared favorably with the actual demands of the job, and AFSC job satisfaction and motivation are probably strengthened by this relationship.

A less favorable trend in this area is the lower ratings for Job Performance Goals (Factor 810) and Task Characteristics (Factor 812) by the AFSC officer and civilian respondents. Their responses to the goals factor may reflect the fact that many AFSC officers and civilians are specialists, whose jobs do not involve teams or groups with common goals. Supervisors may not be able to establish clear goals for each of their people. The inherent difficulties of program management, and research with its technical unknowns, also make some AFSC goals somewhat difficult to establish. Numerous studies report the correlation between organizational goal-setting and a positive impact on employee motivation, performance, and attitudes. This area may be a demotivator for some members of AFSC tasked with very challenging and changing job responsibilities. However, it may be that this job environment actually requires broad goals and flexibility. It is, therefore, possible that a lower than data base mean response is not

necessarily a negative signal.

The less positive responses by AFSC officers and civilians to Task Characteristics (Factor 812) more clearly reflects a potential for job demotivation. The factor measures several different aspects of job attitudes. Those personnel categories of AFSC most heavily tasked with carrying out the technical aspects of mission accomplishment responded less positively than their data base peers. This response could once again reflect the specialist nature of these AFSC categories and their desire for more and wider responsibility.

The AFSC officers stood alone in the command in their lower than data base response for Job Related Training (Factor 823). Other commands (especially operational units) have very specific training procedures and dedicated training units. AFSC organizations, on the other hand, tend to be one deep at many positions and do not have similar tasks being performed by many people. The training ratings by the AFSC officers may be affected by the nature of formal training. The AFSC officers are usually required to go TDY to obtain formal training. Duty requirements and other tasks may interfere with their school attendance. The data base response (more positive) is probably influenced by the on-base facilities and dedicated training personnel for Air Force operational officers. Another possible factor in the AFSC response could be the frustration on the part of junior officers in dealing with much more senior representatives of industry. It is possible that lack of training may be a scapegoat for lack of experience. The negative trend of the officers and civilians of AFSC continues in the "Job Enrichment" area.

Job Enrichment

The Task Significance factor (Factor 802) merits discussion in this area. The AFSC officers' and civilians' mean responses were 0.38 and 0.37 scale points (respectively) below the data base means for this factor. The factor is a measure of the respondents' feelings about the importance of the job. Task significance is considered very important to the motivating potential of any job (Reif, 1975). It is hard for an employee to get internally motivated to perform a job that is perceived to be low in significance. The cause of this feeling could be under-motivating jobs, a failure on the part of the supervisor or others to properly explain the role of the employee in the organization, a bias on the part of the employee, or other reasons. The supervisor holds the key for resolving this feeling, either by job enrichment or dialogue (motivation). The mission of AFSC may also contribute to the lower ratings. Long range pay-offs from research and lengthy systems development lead-times may make daily activities seem unimportant to some officers and civilians. The civilian response is based on a greater cross section of grade and responsibility and may therefore be more indicative than the officer response.

The ability to motivate employees is definitely related to their perception of job importance. The trend toward less positive responses to the "Job Enrichment" factors by both the officers and civilians is important. Job attitudes are crucial to productivity and motivation. These personnel are very important to the success of Air Force weapon systems development and effective use of scarce resources. The overall mean scores do not necessarily reflect a lack of productivity or motivation, but may indicate that other Air Force officers and civilians feel more challenged,

responsible, and interested in their jobs.

The more positive trends in this area (Job Enrichment) by the AFSC enlisted personnel indicate their desire for more challenge, variety, and other intrinsically motivating job characteristics. However, the less positive responses by AFSC's officers and civilians merit further investigation and action on the part of AFSC leaders.

The Work Group Process

In this area, the Work Support factor (Factor 805) received higher mean scores in all AFSC personnel categories. This factor indicated that tools and workspace were adequate and that additional duties did not hinder performance of the primary job. Herzberg's Two-Factor Theory calls this workplace dimension a "satisfier." He stressed that satisfaction of such needs is not a motivator for harder work. This factor was the only case where AFSC officers had more positive responses than other data base officers.

Less positive AFSC responses in this area centered on factors related to supervision and supervisory communication. Thompson (1980) concluded that a positive correlation exists between these two factors and the career intent of scientific officers. The AFSC officers show a similar trend to that observed by Thompson. Their career intentions are less positive than those of the data base officers.

Factors related to supervision and communications were scored more positively by AFSC's enlisted personnel and civilian employees. Earlier discussion pointed out the reduced supervisory opportunities in AFSC compared to the data base. Supervisors at typical AFSC organizations may be organizationally farther removed from their subordinates than supervisors at

typical data base organizations. The more positive responses from these two personnel categories may indicate that the relative distance between supervisor and employee does not impede the supervisor's effectiveness. Conversely, the data base response could mean that closer supervision may be considered micromanagement. The last area to be discussed is the "Work Group Output."

The Work Group Output

The less positive responses by AFSC officers and civilians to Pride (Factor 811) have adverse implications. Both groups indicated their more positive desires for autonomy, growth, and use of skills (Factor 806). Herzberg's motivational theory indicates that employees who desire higher order need satisfaction are more motivated and satisfied by jobs higher in these characteristics. AFSC officers' and civilians' responses to the Pride factor indicate that their jobs are not fulfilling their needs. Reduced pride may make an employee difficult to motivate and productivity probably suffers. The career intent of AFSC officers (Table B-21) shows a greater percentage leaning toward separation than in the data base group.

The overall feelings of the three groups are summarized fairly well by the General Organizational Climate factor (Factor 824). This is a broad-ranging factor. The AFSC officers' mean response was significantly below the data base mean. The AFSC enlisted personnels' mean response was significantly higher than the data base mean, and the AFSC civilians' response was not significantly different from their comparison group's.

This concludes the discussion of the comparison of LMDC's OAP survey results between AFSC and the rest of the Air Force. Each of the three personnel categories was examined. Trends and some significantly different

responses were analyzed and discussed. In the next chapter, some recommendations for AFSC commanders and functional managers are made. Areas of attitudinal strengths and weaknesses are stressed.

Chapter Six

RECOMMENDATIONS

Analyses of the LMDC OAP data revealed some significant attitudinal differences between AFSC personnel and their data base counterparts. In this chapter, recommendations based on these analyses are made to AFSC commanders and functional managers. For ease of review, these recommendations are divided by personnel category and into strengths/recommendations and weaknesses/recommendations.

Officers

Based on their OAP responses, AFSC officers desire challenge, opportunity for personal growth, and autonomy. They appear to collectively need some job enrichment. Their less positive feelings on Task Significance and Pride are of concern, as are their less positive feelings toward virtually all facets of their supervision.

Strengths/Recommendations

1. AFSC officers desire challenge and growth.
 - a. Continue trend of longer tours as it provides chance to build technical competence and lessen inexperience.
 - b. Place officers in positions with growth potential, but avoid positions where lack of training and/or experience serves only to frustrate.
 - c. Encourage officers to follow a weapon system program as it technically matures. Officers could begin in an R&D assignment and then move to a product division (SPO) and/or an Air Force Plant Representatives Office (AFPRO).

Weaknesses/Recommendations

1. AFSC officers do not feel that their jobs are as significant, nor do they have as much pride in their jobs, as data base officers.

- a. Examine job characteristics. Does the job or the officer need rebuilding?
- b. Ensure that all officers (security clearance permitting) are familiar with the "threat" and fully understand their place in the organization. Also ensure that the organization's role and mission are proudly presented.
- c. Continue Lieutenant's Professional Development Courses and Project Warrior efforts. Consider having pioneers in technical or hardware delivery innovations address AFSC officers working in those specialties.
- d. Encourage military Commander's Calls for officers to stress military tradition in heavily civilian AFSC organizations.
- e. Encourage membership in professional organizations (i.e. Engineering Associations, or Contract Management Associations).

2. AFSC officers rated their supervisors lower than did the data base officers.

- a. Carefully choose AFSC supervisors. Look for technical competence and also a willingness and ability to communicate and motivate.
- b. Encourage supervisors to set goals in their organization, and allow individuals to participate in goal-setting.
- c. Create more supervisory opportunities for AFSC officers, especially junior officers. Develop supervisory abilities for future, more responsible assignments.
- d. AFSC officers enjoy their autonomy. Allow innovative, responsible officers freedom to perform, but do establish guidelines.

3. AFSC officers could have a more positive attitude about training.

- a. Encourage training monitors to ensure courses (required and beneficial) are made available to the officers. Combine OJT opportunities for trainees and new employees to maximize resources.

Enlisted Personnel

The positive attitudes of AFSC enlisted personnel are impressive. Their only mean response less positive than the data base was in their awareness of advancement. In spite of lowered awareness of advancement opportunities, AFSC enlisted personnel are still more career-oriented than the data base group.

Strengths/Recommendations

- 1. AFSC enlisted personnel desire task variety and challenge.
 - a. Look for job enrichment opportunities and less task repetition for AFSC enlisted positions.
 - b. Encourage AFSC enlisted personnel with stable day shift schedules to continue formal education in evenings.

Weaknesses/Recommendations

- 1. AFSC enlisted personnel need to be made more aware of advancement and recognition.
 - a. Ensure supervisors (military or civilian) are aware of enlisted promotion opportunities.
 - b. Encourage First Sergeant's visits to small groups of enlisted personnel in heavily officer or civilian populated organizations.
 - c. Encourage stressing promotion information at Commander's Calls for enlisted personnel.
 - d. Actively promote cross-training for eligible enlisted personnel.

Civilian Employees

Civilian personnel are primary repositories of the corporate knowledge in most AFSC organizations. They represent approximately one half of the command's total manpower. Civilians work with military members of AFSC at virtually every position and level of responsibility.

Strengths/Recommendations

1. AFSC civilians desire challenge, use of skills, and growth.
 - a. Encourage job enrichment of civilian jobs. More challenging positions increase motivation and productivity. This is especially important for civilian positions due to greater tour stability.
2. AFSC civilians are more positive toward their supervision than the data base group.
 - a. Encourage supervisors to set goals and to communicate better with subordinates.
 - b. Encourage supervisors to select motivated civilians to train newly assigned military personnel in technical tasks and responsibilities in the organization.

Weaknesses/Recommendations

1. AFSC civilians do not feel that their jobs are as significant, nor do they have as much pride in their jobs, as data base civilians.
 - a. Examine job characteristics. Attempt to enrich and enhance importance of jobs where possible.
 - b. Ensure that all civilian employees (security clearance permitting) are familiar with the "threat" and fully understand their place in the organization. Also ensure that the organization's role and mission are proudly presented.
 - c. Encourage Civilian Calls to stress accomplishments and increase dialogue between leaders and civilian employees.

This concludes recommendations for AFSC commanders and resource managers. The OAP results indicate that AFSC personnel have attitudes that

are different from a cumulative Air Force attitude data base. It is hoped that the results of the comparison, the discussion, and recommendations will provide some insight into improving the productivity of the men and women of Air Force Systems Command.

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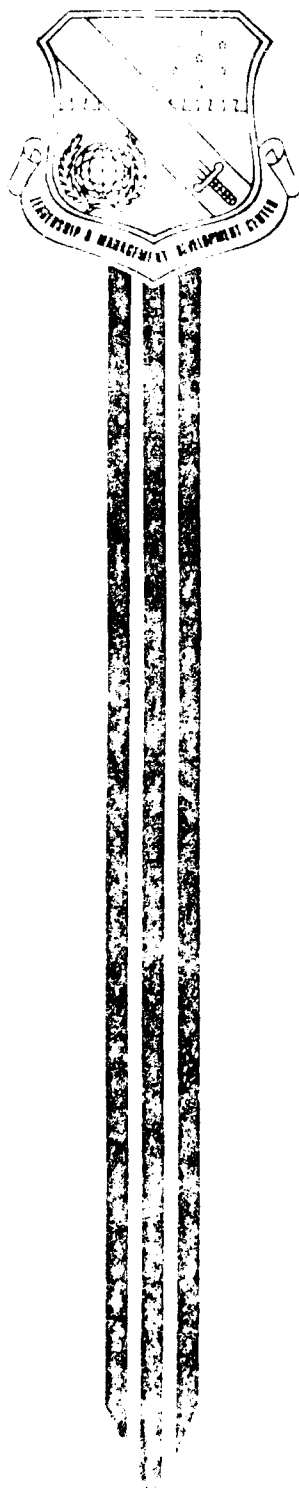
APPENDIX

APPENDIX A

Organizational Assessment Package Survey Factors and Variables

Appendix A

ORGANIZATIONAL ASSESSMENT PACKAGE SURVEY



FACTORS AND VARIABLES

JANUARY 1986

**LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER
AIR UNIVERSITY
Maxwell Air Force Base, Alabama 36112-5712**

Appendix A

FACTORS AND VARIABLES OF THE ORGANIZATIONAL ASSESSMENT PACKAGE

The OAP is a 109-item survey questionnaire designed jointly by the Air Force Human Resources Laboratory and the Leadership and Management Development Center (LMDC) and is used to aid LMDC in its missions to: (a) conduct research on Air Force systemic issues using information in the OAP database, (b) provide leadership and management training, and (c) provide management consultation service to Air Force commanders upon request.

Allowable responses to the attitudinal items on the survey range from 1 (low) to 7 (high). The attitudinal items are grouped into 25 factors that address such areas as the job itself, management and supervision, communications, and performance in the organization. Each data record consists of 7 externally coded descriptors and 24 demographic items as well as the responses to the 93 attitudinal items.

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.

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 - QJI Total Score
- 809 - Job Motivation Index - Additive
- 825 - Motivation Potential Score

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

- 805 - Performance Barriers/Blockages (Work Support)
- 818 - Management and Supervision Climate
- 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

EXTERNALLY CODED DESCRIPTORS

Batch Number
Julian Date of Survey
Major Command
Base Code
Consultation Method
Consultant Code
Survey Version

(Note: These items are concatenated to each data record during EDP processing.)

Appendix A

DEMOGRAPHIC ITEMS (NOT A STATISTICAL FACTOR)

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 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

3

Variable Number

004

Statement Number

2

Statement

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

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

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

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

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.

4

Appendix A

Variable Number	Statement Number	Statement	Variable Number	Statement Number	Statement
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	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
010	7	Highest level of professional military education (residence or correspondence): 0. None or not applicable 1. MCO Orientation Course or USMC Supervisor Course (MCO Phase 1 or 2) 2. MCO Leadership School (MCO Phase 3) 3. MCO Academy (MCO Phase 4) 4. Senior MCO Academy (MCO Phase 5) 5. Squadron Officer School 6. Intermediate Service School (i.e., ALSC, AFSC) 7. Senior Service School (i.e., AMC, ICAF, MAC)	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
011	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	016	13	How often does your supervisor hold group meetings? 1. Never 2. Occasionally 3. Monthly 4. Weekly 5. Daily 6. Continuously
012	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	017	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
013	10	Does your supervisor actually write your performance reports? 1. Yes 2. No 3. Not sure	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

Appendix A

Variable
Number

Statement
Number

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

NOTE: Variable 008, Statement 11 was added to the OAP on 19 Jan 80 and replaced variable 016 which appears on page 6. Although no longer used, Variable 016 is still shown because data collected from about 25,000 samples for this variable are still in the data base.

FACTORS

Each 800 series factor consists of two or more variables which correspond to statements in the OAP. A mean score can be derived for each factor except 805, 807, 808, 809 and 825 by using a "straight average." The formula for computing the exceptions is indicated.

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?

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

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?

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

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

Appendix A

FACTOR B02 - 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 B03 (NOT USED)

FACTOR B04 - 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 B05 - 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)1/3

FACTOR B06 - 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
249	51	(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount") 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 B07 - JOB MOTIVATION INDEX: A composite index derived from the six job characteristics that reflect the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job incumbents.

Index is computed using the following factors:

800	Skill variety
801	Task identity
802	Task significance
805	Performance barriers/blockages
813	Task autonomy
804	Job feedback

Formula $((800+801+802+805)/4) * 813 + 804$

FACTOR B08 - QJI TOTAL SCORE: Assesses one's perception of motivation provided by his or her job. This factor is a variation of a scale employed by other job motivation theorists.

Score is computed using the variables in the following formula:

Formula $(Y201+Y202+Y203+Y270+Y271+Y272$
 $+8 \cdot Y204+Y201+Y208+Y209+Y210$
 $+Y211+Y212+Y213)$

Appendix A

FACTOR 803 - JOB MOTIVATION INDEX ---- ADDITIVE: This factor is a variation of a scale employed by other job motivation theorists.

Index is computed using the following factors:

800	Skill variety
801	Task identity
802	Task significance
803	Performance barriers/blockages
813	Task autonomy
804	Work repetition

$$\text{Formula } ((800+801+802+803)/4)+813-804$$

FACTOR 810 - JOB PERFORMANCE GOALS: Measures the extent to which job performance goals are clear, specific, realistic, understandable, and challenging.

Variable Number	Statement
217	To what extent do you know exactly what is expected of you in performing your job?
218	To what extent are your job performance goals difficult to accomplish?
273	To what extent are your job performance goals clear?
274	To what extent are your job performance goals specific?
221	To what extent are your job performance goals realistic?

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

Variable Number	Statement
215	To what extent are you proud of your job?
275	To what extent does your work give you a feeling of pride?

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FACTOR 812 - 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
201	To what extent does your job require you to do many different things, using a variety of your talents and skills?
202	To what extent does your job involve doing a whole task or unit of work?
203	To what extent is your job significant, in that it affects others in some important way?
272	To what extent are you able to determine how well you are doing your job without feedback from anyone else?
209	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	To what extent does doing your job well affect a lot of people?
211	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
212	To what extent does your job require you to use a number of complex skills?

FACTOR 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.

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

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Appendix A

FACTOR 814 - MORE 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 815 (NOT USED)

FACTOR 816 - DESIRED REPETITIVE EASY TASKS: Measures the extent to which one desires his or her job 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 - JOB INFLUENCES (NOT A STATISTICAL FACTOR):

Variable Number	Statement Number	Statement
215	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?

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?

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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 818 - MANAGEMENT AND SUPERVISION (A): 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 - MANAGEMENT AND SUPERVISION (B): (NOT A STATISTICAL FACTOR)

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.

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Appendix A

FACTOR 819 - SUPERVISOR COMMUNICATIONS CLIMATE: Measures the degree to which the worker believes 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	57	My supervisor asks members for their ideas on task improvements.
425	58	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.

FACTOR 920 - 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.

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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.

FACTOR 821 - WORK GROUP EFFECTIVENESS: 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 - WORK INTERFERENCES (NOT A STATISTICAL FACTOR): Identifies things that 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?

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Appendix A

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

Variable 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 823 - JOB RELATED TRAINING: Measures the extent to which one is satisfied with on-the-job and technical training received.

Variable 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.

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

Variable 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.

FACTOR 825 - MOTIVATION POTENTIAL SCORE: This factor is another variation of a scale employed by other job motivation theorists. The score ranges between 1 and 343 with 109 being the Air Force average. Low scores indicate a poorly motivating job. Score is computed using the following factors:

800	Skill variety
801	Task identity
802	Task significance
804	Job feedback
813	Task autonomy

Formula: $(800 \cdot 801 \cdot 802 / 3) \cdot 813 \cdot 804$

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Appendix A

VARIABLES

Variable Number	Factor	Statement Number	Statement	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?	213	813	30	To what extent does your job give you freedom to do your work as you see fit?
202	801/812	18	To what extent does your job involve doing a whole task or unit of work?	214	813	31	To what extent are you allowed to make the major decisions required to perform your job well?
203	802/812	19	To what extent is your job significant, in that it affects others in some important way?	215	811	32	To what extent are you proud of your job?
204 & 205	--	--	(Not used)	216*	--	33	To what extent do you feel accountable to your supervisor in accomplishing your job?
206	805	23	To what extent do additional duties interfere with the performance of your primary job?	217	810	34	To what extent do you know exactly what is expected of you in performing your job?
207	805	24	To what extent do you have adequate tools and equipment to accomplish your job?	218	810	35	To what extent are your job performance goals difficult to accomplish?
208	805	25	To what extent is the amount of work space provided adequate?	219 & 220	--	--	(Not used)
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?	221	810	38	To what extent are your job performance goals realistic?
210	802/812	27	To what extent does doing your job well affect a lot of people?	222-225	--	--	(Not used)
211	101/812	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?	226	814	39	To what extent do you perform the same tasks repeatedly within a short period of time?
212	800/812	29	To what extent does your job require you to use a number of complex skills?	227	814	40	To what extent are you faced with the same type of problem on a weekly basis?

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

Appendix A

Variable Number	Factor	Statement Number
228-233	--	--
234	817	41
235-237	--	--
238*	--	42
239	817	43
240	817	44
241	817	45
242-248	--	--
249	806	51
250	806	52
251	806	53
252	806	54
253	806	55
254	--	--
265	816	56

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

Variable Number	Factor	Statement Number
256 & 257	--	--
258	816	57
259	821	77
260	821	78
261	821	79
262 & 263	--	--
264	821	80
265	821	81
266-269	--	--
270	813	20
271	813	21
272	804/812	22

Appendix A

Variable Number	Factor	Statement Number	Statement	Variable Number	Factor	Statement Number	Statement
273	810	36	To what extent are your job performance goals clear?	303	820	85	My work group is usually aware of important events and situations.
274	810	37	To what extent are your job performance goals specific?	304	820	86	My complaints are aired satisfactorily.
275	811	46	To what extent does your work give you a feeling of pride?	305	824	87	My organization is very interested in the attitudes of the group members toward their jobs.
276	817	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?	306	824	88	My organization has a very strong interest in the welfare of its people.
277**	--	49	To what extent do you have the necessary supplies to accomplish your job?	307	824	89	I am very proud to work for this organization.
278**	--	49	To what extent do details (task not covered by primary or additional duty descriptions) interfere with the performance of your primary job?	308	824	90	I feel responsible to my organization in accomplishing its mission.
279**	--	50	To what extent does a bottleneck in your organization seriously affect the flow of work either to or from your group?	309	820	91	The information in my organization is widely shared so that those needing it have it available.
280-299	--	--	(Not used)	310	824	92	Personnel in my unit are recognized for outstanding performance.
300	820	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.	311	824	93	I am usually given the opportunity to show or demonstrate my work to others.
301	820	83	My organization provides all the necessary information for me to do my job effectively.	312	824	94	There is a high spirit of teamwork among my co-workers.
302	820	84	My organization provides adequate information to my work group.	313	824	95	There is outstanding cooperation between work groups of my organization.

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

Appendix A

Variable Number	Factor	Statement Number
314	820	96
315	824	97
316	824	98
317	820	99
318	820	100
319-403	--	--
404	818	58
405	818	59
406-409	--	--
410	818	60
411	819	61
412	818	62
413	818	63
414 & 415	--	--
416	818	65
417-423	--	--
424***	--	66
425	--	--

Variable Number	Factor	Statement Number
426	819	67
427	--	--
428	819	68
429 & 430	--	--
431	819	69
432	--	--
433	819	70
434***	--	71
435	819	72
436	819	73
437	819	74
438	--	--
439***	--	75
440 & 441	--	--
442	819	76
443 & 444	--	--
445	818	64
446-704	--	--

Statement
My organization has clear-cut goals.
I feel motivated to contribute my best efforts to the mission of my organization.
My organization rewards individuals based on performance.
The goals of my organization are reasonable.
My organization provides accurate information to my work group.
(Not used)
My supervisor is a good planner.
My supervisor sets high performance standards.
(Not used)
My supervisor encourages teamwork.
My supervisor represents the group at all times.
My supervisor establishes good work procedures.
My supervisor has made his responsibilities clear to the group.
(Not used)
My supervisor performs well under pressure.
(Not used)
My supervisor takes time to help me when needed.
(Not used)

Statement
My supervisor asks members for their ideas on task improvements.
(Not used)
My supervisor explains how my job contributes to the overall mission.
(Not used)
My supervisor helps me set specific goals.
(Not used)
My supervisor lets me know when I am doing a good job.
My supervisor lets me know when I am doing a poor job.
My supervisor always helps me improve my performance.
My supervisor insures that I get job related training when needed.
My job performance has improved due to feedback received from my supervisor.
(Not used)
When I need technical advice, I usually go to my supervisor.
(Not used)
My supervisor frequently gives me feedback on how well I am doing my job.
(Not used)
My supervisor fully explains procedures to each group member.
(Not used)

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

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

Appendix A

Variable Number	Factor	Statement Number	Statement
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.
706-708	--	--	(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	Faithful 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.
713-716	--	--	(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.
720-722	--	--	(Not used)
723	822	109	My Job as a Whole
724-999	--	--	(Not used)

APPENDIX

APPENDIX B

Analysis of Demographic Information

Table B-1

Number of Respondents by Personnel Category

	AFSC (<u>n</u>)	Data Base (<u>n</u>)
Officer	2,012	10,698
Enlisted	2,034	68,513
Civilians	4,850	20,077

Table B-2

Sex by Personnel Category

	-----AFSC-----		-----Data Base-----	
	Male (%)	Female (%)	Male (%)	Female (%)
<u>n</u> =	5,918	2,941	82,087	16,851
Officer	27.6	12.5	11.5	7.2
Enlisted	26.5	15.7	73.8	46.3
Civilians	45.8	71.8	14.7	46.5

Table B-3

Age by Personnel Category

	-----AFSC-----			-----Data Base-----		
	Off (%)	Enl (%)	Civ (%)	Off (%)	Enl (%)	Civ (%)
<u>n</u> =	2,012	2,034	4,850	10,698	68,506	20,071
17 to 20 Yrs	0.0	11.9	0.7	0.0	13.8	1.3
21 to 25 Yrs	18.6	35.3	5.0	11.0	38.1	6.5
26 to 30 Yrs	22.2	20.9	9.4	29.1	19.4	10.8
31 to 35 Yrs	19.5	14.2	12.3	24.1	14.5	14.8
36 to 40 Yrs	19.4	11.2	15.0	19.6	9.7	13.8
41 to 45 Yrs	13.6	4.9	13.3	10.5	2.8	12.3
46 to 50 Yrs	4.7	0.6	16.3	3.2	0.7	13.4
>50 Yrs	1.7	0.9	27.8	2.2	0.6	26.7

Table B-4

Time in Air Force

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,012	2,029	4,506	10,677	68,331	17,606
< 1 Yr	7.2	7.9	5.2	2.5	7.0	5.0
1 to 2 Yrs	8.8	10.9	4.2	4.7	12.0	5.2
2 to 3 Yrs	7.4	11.2	4.4	7.6	12.5	5.4
3 to 4 Yrs	6.7	12.5	4.6	7.2	11.3	4.9
4 to 8 Yrs	16.2	19.7	12.1	22.7	20.5	11.8
8 to 12 Yrs	13.1	11.3	12.7	16.7	12.9	12.4
> 12 Yrs	40.3	26.1	56.4	38.3	23.6	55.0

Table B-5

Months in Present Career Field

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,003	2,027	4,773	10,618	68,110	19,501
< 6 Mos	6.5	4.8	4.9	5.0	4.8	5.7
6 to 12 Mos	7.6	9.4	5.7	7.6	7.9	7.6
12 to 18 Mos	8.7	6.7	4.7	7.6	8.2	6.2
18 to 36 Mos	19.3	21.6	11.7	22.0	20.8	13.8
> 36 Mos	57.6	57.3	72.6	57.6	57.9	66.3

Table B-6

Months at Present Duty Station

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,008	2,029	4,765	10,663	68,165	19,589
< 6 Mos	13.2	10.9	6.8	13.9	15.5	6.1
6 to 12 Mos	14.6	18.7	7.1	16.7	18.5	8.0
12 to 18 Mos	17.3	11.4	5.2	16.2	16.2	6.2
18 to 36 Mos	31.5	28.6	12.4	36.7	32.2	15.7
> 36 Mos	23.2	30.2	68.2	16.1	17.4	63.7

Table B-7

Months in Present Position

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,006	2,020	4,806	10,653	68,082	19,703
< 6 Mos	22.6	25.0	14.2	27.2	27.7	13.8
6 to 12 Mos	21.6	27.3	14.6	25.1	23.9	14.8
12 to 18 Mos	19.5	13.4	10.4	16.6	16.4	10.2
18 to 36 Mos	27.9	22.4	19.4	24.1	22.6	19.6
> 36 Mos	8.1	11.6	41.1	6.8	9.0	41.4

Table B-8

Ethnic Group

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,000	2,020	4,789	10,646	68,027	19,751
Black	6.0	20.2	9.2	5.7	16.1	9.6
Hispanic	2.7	8.6	7.5	2.3	5.1	18.1
Other	4.4	6.7	4.8	4.3	7.1	7.7
White	86.9	64.5	78.5	87.7	71.7	64.6

Table B-9

Marital Status

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,010	2,033	4,833	10,689	68,386	20,017
Not Married	24.9	36.5	21.8	20.4	35.4	17.8
Married	73.3	60.0	71.0	77.9	62.2	76.4
Single Parent	1.6	3.3	7.0	1.5	2.2	5.7

Table B-10

Spouse Status: AFSC

	Geographically Separated			Not Geographically Separated		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	57	91	184	1,417	1,130	3,249
Civilian						
Employed	49.1	53.8	75.5	39.2	44.0	59.1
Not						
Employed	21.0	17.5	13.0	50.5	35.0	35.9
Military						
Member	29.9	28.5	11.4	10.2	20.8	4.9

Table B-11

Spouse Status: Data Base

	Geographically Separated			Not Geographically Separated		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	369	3,412	889	7,968	39,177	14,410
Civilian						
Employed	60.4	58.7	67.8	33.3	37.7	53.2
Not						
Employed	19.7	26.6	18.5	58.2	48.2	33.8
Military						
Member	19.7	14.6	13.6	8.3	13.9	12.9

Table B-12

Educational Level

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,006	2,022	4,817	10,670	68,264	19,773
Non HS Grad	0.0	0.3	1.6	0.0	0.7	6.3
HS Grad or GED	0.0	33.8	16.5	0.2	45.4	31.8
< 2 Yrs College	0.1	36.5	19.0	0.2	34.5	24.9
> 2 Yrs College	1.5	22.9	14.8	1.3	15.5	19.1
Bachelor's						
Degree	42.4	5.1	28.3	54.9	3.1	12.2
Master's						
Degree	41.7	1.0	17.0	36.2	0.4	4.7
Doctoral						
Degree	14.0	0.0	2.4	6.9	0.0	0.6

Table B-13

Professional Military Education

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,011	2,032	4,838	10,682	68,349	19,952
None	42.6	30.9	86.9	32.9	31.6	76.5
Phase 1 or 2		28.6	2.7		29.9	8.6
Command						
Academy		30.5	2.4		30.4	7.0
Sr NCO						
Academy		7.0	1.2		4.8	2.3
Sq Officer						
School	18.7		1.7	28.2		0.9
Int Service						
School	20.0		2.9	23.9		3.5
Sr Service						
School	16.0		2.2	11.6		1.1

Table B-14

Number People Directly Supervised

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	1,871	1,786	4,063	10,086	62,223	16,449
None	56.9	66.9	79.4	38.4	60.0	67.3
1 Person	5.7	7.9	2.1	7.4	7.5	3.1
2 People	3.2	5.0	1.8	6.9	7.2	2.6
3 People	5.0	5.5	2.2	8.5	5.5	2.8
4 to 5 People	11.7	6.5	4.6	14.0	7.9	5.5
6 to 8 People	8.2	3.6	4.5	10.4	4.7	4.5
9 or >People	9.1	4.3	5.1	14.0	6.8	13.7

Table B-15

Number People for Whom Respondent Writes APR/OER/Appraisal

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,006	2,030	4,841	10,667	68,283	20,009
None	66.1	73.0	84.7	48.7	66.3	77.3
1 Person	5.3	8.2	1.5	9.9	8.6	2.2
2 People	3.2	5.4	1.4	7.7	7.8	2.0
3 People	4.7	5.0	1.6	7.5	5.6	2.1
4 to 5 People	8.8	4.8	3.4	11.7	7.0	3.9
6 to 8 People	6.4	2.5	3.8	8.7	2.4	2.9
9 or >People	5.1	0.8	3.3	5.4	1.9	9.3

Table B-16

Supervisor Writes Respondent's APR/OER/Appraisal

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	1,990	1,992	4,710	10,531	67,521	19,351
Yes	71.2	74.5	81.3	78.6	70.2	76.9
No	18.9	14.5	8.2	13.4	18.8	9.8
Not Sure	9.8	10.8	10.4	7.9	10.9	13.1

Table B-17

Work Schedule

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	1,992	2,006	4,755	10,589	67,840	19,610
Day Shift	75.7	73.7	93.2	56.2	59.6	86.7
Swing Shift	0.2	2.3	0.9	0.2	7.5	3.7
Mid Shift	0.1	2.8	0.2	0.0	2.9	0.8
Rotating Shifts	7.0	10.7	1.5	4.2	13.5	5.2
Irregular						
Schedule	9.6	7.7	1.6	12.9	12.3	2.4
A Lot TDY/						
On-Call	7.1	1.6	2.3	8.1	2.5	0.6
Crew Schedule	0.1	0.8	0.1	18.0	1.3	0.4

Table B-18

Supervisor Holds Group Meetings

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	1,992	1,995	4,767	10,565	67,407	19,759
Never	6.0	14.5	9.5	6.6	16.4	10.1
Occasionally	26.1	33.9	40.9	22.3	33.7	33.0
Monthly	14.7	21.8	8.9	13.7	8.3	20.8
Weekly	41.5	24.6	35.4	42.4	27.4	29.3
Daily	10.3	3.1	3.3	12.5	11.7	4.7
Continuously	1.3	1.8	1.6	2.1	2.2	1.8

Table B-19

Supervisor Holds Group Meetings to Solve Problems

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	1,976	1,970	4,691	10,511	66,990	19,495
Never	18.7	22.4	24.1	14.7	25.0	24.2
Occasionally	41.7	36.3	46.1	42.6	39.8	44.4
Half the Time	21.9	18.4	15.7	21.9	16.6	15.2
Always	17.6	22.7	13.8	20.6	18.4	16.0

Table B-20

Aeronautical Rating and Current Status

	-----AFSC-----		---Data Base---	
	Off(%)	Enl(%)	Off(%)	Enl(%)
<u>n</u> =	2,010	2,030	10,529	67,225
Nonrated, not on aircrew	87.0	95.5	56.3	90.4
Nonrated, now on aircrew	0.7	2.4	2.6	2.0
Rated, on crew/ops job	0.8	0.2	31.9	1.6
Rated, in support job	11.3	1.8	8.9	5.8

Table B-21

Career Intent

	-----AFSC-----			-----Data Base-----		
	Off(%)	Enl(%)	Civ(%)	Off(%)	Enl(%)	Civ(%)
<u>n</u> =	2,001	2,025	4,269	10,637	68,122	17,150
Retire 12 Mos	4.9	4.4	4.8	3.0	3.0	6.6
Career	46.9	38.4	48.3	51.7	34.7	52.1
Likely Career	20.5	20.6	25.8	22.8	18.7	22.7
Maybe Career	17.7	19.2	14.6	14.6	20.6	12.1
Likely Separate	6.3	10.2	3.1	4.7	13.7	3.5
Separate	3.3	6.9	3.2	2.8	9.0	2.7

* Note: The number (n) is the total number of valid responses for the factor being examined.

APPENDIX

APPENDIX C

Attitudinal Comparison of AFSC
Personnel to the Data Base

Table C-1
 Comparison of OAP Factor Scores
 Between AFSC and Other Officers (Tables C-1 - C-4)

THE WORK ITSELF				
	Mean	SD	df ^a	<u>t</u>
Job Performance Goals				
AFSC Officers	4.48	1.03	2608	-11.41***
Other Officers	4.76	.97		
Task Characteristics				
AFSC Officers	5.14	1.05	2543	-9.21***
Other Officers	5.38	.93		
Task Autonomy				
AFSC Officers	4.64	1.29	2823	3.00**
Other Officers	4.54	1.36		
Work Repetition				
AFSC Officers	4.04	1.44	2669	-9.37***
Other Officers	4.36	1.35		
Desired Repetitive/ Easy Tasks				
AFSC Officers	2.39	1.05	12135	-3.59***
Other Officers	2.49	1.05		
Job Related Training				
AFSC Officers	4.30	1.58	2064	-10.62***
Other Officers	4.76	1.45		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-2

JOB ENRICHMENT				
	Mean	SD	df ^a	<u>t</u>
Skill Variety				
AFSC Officers	5.32	1.38	2656	-4.12***
Other Officers	5.46	1.26		
Task Identity				
AFSC Officers	5.02	1.28	2681	-7.84***
Other Officers	5.26	1.20		
Task Significance				
AFSC Officers	5.47	1.41	2585	-11.45***
Other Officers	5.85	1.21		
Job Feedback				
AFSC Officers	4.73	1.24	2683	-6.12***
Other Officers	4.92	1.17		
Need for Enrichment				
AFSC Officers	6.12	0.84	12292	1.91
Other Officers	6.08	0.87		
Job Motivation Index				
AFSC Officers	123.07	68.11	11490	-2.24*
Other Officers	126.90	67.07		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table C-3

WORK GROUP PROCESS				
	Mean	SD	df ^a	t
Work Support				
AFSC Officers	4.65	1.03	2857	4.50***
Other Officers	4.54	1.10		
Management Supervision				
AFSC Officers	5.20	1.39	2574	-3.87***
Other Officers	5.33	1.33		
Supvry Communications Climate				
AFSC Officers	4.70	1.48	2467	-5.23***
Other Officers	4.89	1.41		
Orgnl Communications Climate				
AFSC Officers	4.57	1.29	2485	-11.45***
Other Officers	4.94	1.24		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table C-4

WORK GROUP OUTPUT				
	Mean	SD	df ^a	<u>t</u>
Pride				
AFSC Officers	5.15	1.50	2631	-10.78***
Other Officers	5.54	1.36		
Advancement/Recognition				
AFSC Officers	4.42	1.20	12036	-6.00***
Other Officers	4.60	1.18		
Work Group Effectiveness				
AFSC Officers	5.66	1.16	2569	-4.54***
Other Officers	5.79	1.06		
Job Related Satisfaction				
AFSC Officers	5.35	1.05	2574	-0.31
Other Officers	5.36	1.10		
General Org Climate				
AFSC Officers	4.85	1.29	2532	-12.82***
Other Officers	5.27	1.23		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-5

Comparison of OAP Factor Scores
Between AFSC and Other Enlisted (Tables C-5 - C-8)

THE WORK ITSELF				
	Mean	SD	df ^a	t
Job Performance Goals				
AFSC Enlisted	4.74	1.01	67874	0.18
Other Enlisted	4.74	0.98		
Task Characteristics				
AFSC Enlisted	5.10	1.02	67090	2.71 ^{**}
Other Enlisted	5.04	1.00		
Task Autonomy				
AFSC Enlisted	4.04	1.41	67395	6.59 ^{***}
Other Enlisted	3.83	1.42		
Work Repetition				
AFSC Enlisted	5.16	1.42	2117	0.88
Other Enlisted	5.13	1.37		
Desired Repetitive/ Easy Tasks				
AFSC Enlisted	3.10	1.38	68091	-3.84 ^{***}
Other Enlisted	3.22	1.42		
Job Related Training				
AFSC Enlisted	4.51	1.65	1965	1.03
Other Enlisted	4.47	1.58		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-6

JOB ENRICHMENT				
	Mean	SD	df ^a	<u>t</u>
Skill Variety				
AFSC Enlisted	4.59	1.52	2116	-0.09
Other Enlisted	4.60	1.46		
Task Identity				
AFSC Enlisted	5.06	1.27	69404	0.41
Other Enlisted	5.05	1.25		
Task Significance				
AFSC Enlisted	5.77	1.31	69808	2.43 [*]
Other Enlisted	5.70	1.31		
Job Feedback				
AFSC Enlisted	4.87	1.27	69610	4.02 ^{***}
Other Enlisted	4.76	1.29		
Need for Enrichment				
AFSC Enlisted	5.70	1.17	2098	8.55 ^{***}
Other Enlisted	5.47	1.24		
Job Motivation Index				
AFSC Enlisted	108.87	64.14	62705	5.82 ^{***}
Other Enlisted	100.20	62.87		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

^{*} $p < .05$.

^{**} $p < .01$.

^{***} $p < .001$.

Table C-7

WORK GROUP PROCESS				
	Mean	SD	df ^a	<u>t</u>
Work Support				
AFSC Enlisted	4.67	1.11	67816	5.52 ^{***}
Other Enlisted	4.53	1.12		
Management Supervision				
AFSC Enlisted	4.98	1.58	65803	2.31 [*]
Other Enlisted	4.89	1.58		
Supvry Communications Climate				
AFSC Enlisted	4.55	1.68	66055	1.06
Other Enlisted	4.51	1.63		
Orgnl Communications Climate				
AFSC Enlisted	4.54	1.29	64623	5.38 ^{***}
Other Enlisted	4.37	1.32		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-8

WORK GROUP OUTPUT				
	Mean	SD	df ^a	<u>t</u>
Pride				
AFSC Enlisted	5.03	1.66	69168	3.41***
Other Enlisted	4.90	1.65		
Advancement/Recognition				
AFSC Enlisted	4.16	1.23	66891	-3.97***
Other Enlisted	4.27	1.20		
Work Group Effectiveness				
AFSC Enlisted	5.65	1.20	2053	6.89***
Other Enlisted	5.46	1.24		
Job Related Satisfaction				
AFSC Enlisted	5.23	1.18	1909	9.97***
Other Enlisted	4.95	1.22		
General Org Climate				
AFSC Enlisted	4.56	1.36	64561	4.88***
Other Enlisted	4.40	1.40		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-9
Comparison of OAP Factor Scores
Between AFSC and Other Civilians (Tables C-9 - C-12)

THE WORK ITSELF				
	Mean	SD	df ^a	t
Job Performance Goals				
AFSC Civilians	4.69	1.00	23716	-12.49***
Other Civilians	4.89	0.99		
Task Characteristics				
AFSC Civilians	5.18	0.97	6882	-9.82***
Other Civilians	5.34	0.94		
Task Autonomy				
AFSC Civilians	4.68	1.31	7325	5.76***
Other Civilians	4.56	1.36		
Work Repetition				
AFSC Civilians	4.28	1.43	24415	-20.03***
Other Civilians	4.74	1.42		
Desired Repetitive/ Easy Tasks				
AFSC Civilians	2.72	1.24	7854	-22.13***
Other Civilians	3.18	1.42		
Job Related Training				
AFSC Civilians	4.44	1.60	6508	-1.61
Other Civilians	4.48	1.69		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-10

JOB ENRICHMENT				
	Mean	SD	df ^a	<u>t</u>
Skill Variety				
AFSC Civilians	5.09	1.35	24379	0.80
Other Civilians	5.07	1.37		
Task Identity				
AFSC Civilians	5.22	1.18	24433	-7.13***
Other Civilians	5.36	1.17		
Task Significance				
AFSC Civilians	5.41	1.33	6886	-17.79***
Other Civilians	5.78	1.23		
Job Feedback				
AFSC Civilians	4.96	1.25	24488	-5.47***
Other Civilians	5.07	1.27		
Need for Enrichment				
AFSC Civilians	5.90	1.05	7846	14.43***
Other Civilians	5.65	1.21		
Job Motivation Index				
AFSC Civilians	130.01	69.53	21899	-1.20
Other Civilians	131.45	70.50		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

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

Table C-11

WORK GROUP PROCESS				
	Mean	SD	df ^a	<u>t</u>
Work Support				
AFSC Civilians	4.72	1.05	7379	3.42***
Other Civilians	4.66	1.12		
Management Supervision				
AFSC Civilians	5.09	1.52	7253	5.60***
Other Civilians	4.95	1.66		
Supvry Communications Climate				
AFSC Civilians	4.69	1.59	7215	5.49***
Other Civilians	4.54	1.73		
Orgnl Communications Climate				
AFSC Civilians	4.57	1.38	22577	-1.93
Other Civilians	4.62	1.41		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

Table C-12

WORK GROUP OUTPUT				
	Mean	SD	df ^a	<u>t</u>
Pride				
AFSC Civilians	5.20	1.46	24417	-11.69***
Other Civilians	5.47	1.44		
Advancement/Recognition				
AFSC Civilians	3.86	1.29	6998	4.19***
Other Civilians	3.77	1.35		
Work Group Effectiveness				
AFSC Civilians	5.68	1.24	23578	2.50*
Other Civilians	5.63	1.25		
Job Related Satisfaction				
AFSC Civilians	5.37	1.06	6678	-3.73***
Other Civilians	5.43	1.09		
General Org Climate				
AFSC Civilians	4.75	1.37	6762	-1.64
Other Civilians	4.79	1.40		

^a Approximate degrees of freedom are given when t-test for groups with unequal variances is used.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

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