A COMPARISON OF JOB SATISFACTION OF SENIOR NCOS IN DECENTRALIZED VERSUS CENTRALIZED AIRCRAFT MAINTENANCE ORGANIZATIONS

THESIS

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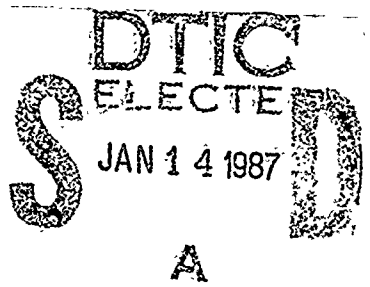

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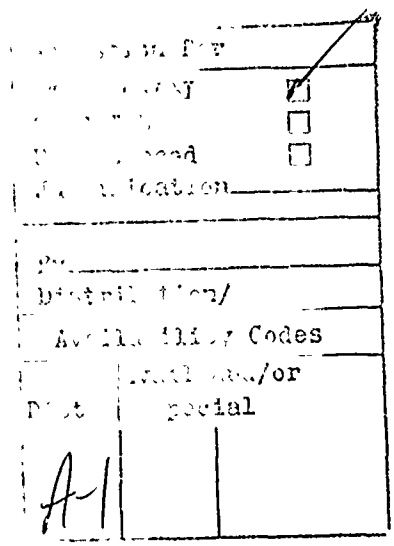

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THESIS

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— Jeffrey M. Snyder

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Abstract

This study was conducted to investigate differences in the levels of job satisfaction between Air Force senior NCOs assigned to decentralized aircraft maintenance organizations and senior NCOs assigned to centralized aircraft maintenance organizations. The study analyzed a subset of data from a data base maintained by the Leadership and Management Development Center which contains responses to the Organizational Assessment Package (OAP) survey administered to Air Force personnel worldwide. The data consisted of demographic data and responses to attitudinal questions grouped into twenty-four statistical factors. A literature review established seventeen of the factors to be causal variables for job satisfaction. In addition, the literature reviewed indicated that individuals in decentralized organizations would experience higher levels of job satisfaction than individuals in centralized organizations.

The multi-variate Hotelling's T^2 test was used to test the hypothesis that there was a difference in the level of job satisfaction between the two populations. This hypothesis was supported by the results of the statistical test. The Student's t-test was used to test seventeen hypotheses that proposed higher values for each

of the seventeen factors for individuals in the decentralized aircraft maintenance organizations. Only two of the seventeen hypotheses were supported by the results of the test. Mean values for Task Autonomy were significantly higher for individuals in the decentralized organizations, while mean values for Work Support were significantly higher for individuals in the centralized organizations. The research was concluded with recommended areas for further study.

A COMPARISON OF JOB SATISFACTION OF SENIOR NCOS IN DECENTRALIZED VERSUS CENTRALIZED AIRCRAFT MAINTENANCE ORGANIZATIONS

I. Introduction

Historical Overview

From the end of the Vietnam War to 1978, the number of fighter sorties flown and the number of hours flown per month by the Tactical Air Command (TAC) fell steadily at the rate of 7.4 percent per year (15:14). By the second quarter of 1978, fighter aircraft were flying an average of only 11.5 sorties and 17 hours per month (4:64). Another measure of the command's productivity, mission capable (MC) rate of the command's aircraft, was at 56.4 percent in 1978, worst in the Air Force (15:14). For comparison purposes, those measures in today's tactical fighter forces would be 18 sorties and 27 flying hours per month and a mission capable rate of 80 percent. When General Wilbur Creech assumed command of the Tactical Air Command in May 1978, his biggest and most difficult challenge was to reverse TAC's descent down what he referred to as the "slippery slope" of readiness and productivity (4:64).

> We must halt the drift towards centralization, consolidation and similar dehumanizing organizational

> norms; the tendency to develop needless overspecialization, and a management approach that stresses the inputs but not the outputs. (15:16)

That is how General Creech described what he felt were the problems contributing to the decline in productivity in the Tactical Air Command. The solution he presented was the Combat Oriented Maintenance Organization (COMO). The objective of this new organizational structure and philosophy was to increase sortie production capability. The program, originally referred to as Production Oriented Maintenance Organization (POMO), and subsequently renamed as COMO, was intended to "expand total work force flexibility, simplify specialist dispatch, and decentralize production decisions to improve sortie capability" (19:14-2). The keystone to this new organizational philosophy was decentralization. Decision making was decentralized, and the organizational structure was simplified to allow for fewer levels of authority between the top levels and lower levels of the aircraft maintenance complex. Major General Jerry Holmes, Tactical Air Command's Deputy Chief of Staff for Logistics, summed up the major problem with the organizational structure before COMO by stating

> . . . prior to decentralization, we had authority vested in the wing people, with the responsibility out on the flightline . . . we had separated the authority from the responsibility. (4:65)

General Creech also highlighted the authority-responsibility connection by stating, "authority and responsibility must

tie together at all levels" (15:16). With the inception of the Combat Oriented Maintenance Organization, both the authority and the responsibility were located at the same level within the organization: the flightline.

Impact of COMO on Productivity

Since the implementation of the COMO system in the Tactical Air Command, the other major commands that fly tactical fighter aircraft, United States Air Forces, Europe (USAFE), Pacific Air Forces (PACAF), and the Alaskan Air Command (AAC) have implemented COMO systems within their own aircraft maintenance complexes. The effects on productivity have been impressive. Sorties flown per month by TAC's aircraft climbed at an average annual rate of 11.4 percent per year from 1978 to 1984 (15:14). In addition, by January 1984, TAC's mission capable rate had risen to 77.6 percent for its fighter force, best in the Air Force (15:14). An 80 percent increase in productivity, as measured by sorties and hours flown and aircraft mission capable rates, has been realized since the inception of COMO (15:14). This dynamic increase in productivity provides strong testimony to the success of the reorganization and decentralization of aircraft maintenance organizations within TAC and the other commands that make up the Air Force's Tactical Air Forces (TAF).

Impact of COMO on Members of Aircraft Maintenance Complexes within the Tactical Air Forces (TAF)

The impact of the TAF decentralization effort on productivity has been substantiated by the facts and figures presented above, but there is another potentially important result that warrants evaluation. This is the effect of the decentralization effort on the degree of job satisfaction among aircraft maintenance personnel. Was there also an effect, either positive or negative, on the level of job satisfaction among the members of the decentralized maintenance organizations? Research in the civilian sector on the impact of decentralized organizational structure appears to indicate that, under certain conditions, decentralized control can also lead to greater job satisfaction. This has, in turn, been shown to lead to decreased absenteeism, less turnover, and other positive benefits that could, in an indirect way, have an additional positive influence on the productivity of the maintenance organizations. The impact of the decentralization effort in the TAF on the job satisfaction of aircraft maintenance personnel has not been adequately addressed.

Research Problem

The question to be investigated in this research effort is as follows: "Is there a difference in job satisfaction between members of decentralized aircraft

maintenance organizations and centralized aircraft maintenance organizations?"

Specific Problem

Enlisted personnel comprise the bulk of personnel in an aircraft maintenance organization. In addition, enlisted technicians involved in the different aspects of aircraft maintenance account for a significant portion of the total enlisted population in the Air Force. Table 1 depicts the distribution of enlisted personnel involved in aircraft maintenance and shows that enlisted aircraft maintenance technicians account for 29 percent of the total enlisted population in the Air Force. Therefore, the question "Is there a difference in job satisfaction among enlisted personnel in decentralized versus centralized aircraft maintenance organizations?" will provide a better evaluation of the impact on job satisfaction of the different organizational structures.

Higher ranking enlisted personnel, known as senior noncommissioned officers (NCOs), are a subset of the enlisted aircraft maintenance population. They are more likely to be affected by organizational structure because their function as managers involves them more closely with the decision-making structure within the aircraft maintenance complex than the lower ranks of enlisted technicians. Consequently, the decentralization of decision-making authority would more readily impact these senior

TABLE 1

NUMBER OF ENLISTED PERSONNEL INVOLVED IN AIRCRAFT MAINTENANCE (1:183-184)

Air Force Specialty Code	Description	Number
32XXX	avionics systems	28,494
42XXX	aircraft systems maint.	45,049
43XXX	aircraft maintenance	44,335
46XXX	mun and wpn maint.	23,690
		141,568

Total enlisted population = 488,603

Percent of enlisted involved in aircraft maintenance

$$\frac{141,568}{488,603} = 29\%$$

NOTE: Figures as of 30 September 1985.

NCOs. Therefore, comparing job satisfaction of senior NCOs in centralized versus decentralized aircraft maintenance organizations allows a more meaningful evaluation of the impact of organizational structure on job satisfaction among enlisted maintenance personnel.

Research Hypotheses

1. There is a difference in the level of job satisfaction between senior NCOs in decentralized aircraft maintenance organizations and senior NCOs in centralized maintenance organizations.

Based on research conducted on the impact of organizational structure on job satisfaction and the model of job satisfaction developed in the next chapter, the following additional hypotheses are submitted:

2. Senior NCOs in decentralized maintenance organizations will perceive higher task autonomy than senior NCOs in centralized maintenance organizations.

3. Senior NCOs in decentralized maintenance organizations will perceive higher skill variety than senior NCOs in centralized maintenance organizations.

4. Senior NCOs in decentralized maintenance organizations will exhibit more task identity than senior NCOs in centralized maintenance organizations.

5. Senior NCOs in decentralized maintenance organizations will perceive higher task significance than senior NCOs in centralized maintenance organizations.

6. Senior NCOs in decentralized maintenance organizations will perceive higher levels of job feedback than senior NCOs in centralized maintenance organizations.

7. Senior NCOs in decentralized maintenance organizations will perceive higher levels of work support than senior NCOs in centralized maintenance organizations.

8. Senior NCOs in decentralized maintenance organizations will have better perceptions of management and supervision than senior NCOs in centralized maintenance organizations.

9. Senior NCOs in decentralized maintenance organizations will perceive higher work group effectiveness than senior NCOs in centralized maintenance organizations.

10. Senior NCOs in decentralized maintenance organizations will perceive a better supervisory communications climate than senior NCOs in centralized maintenance organizations.

11. Senior NCOs in decentralized maintenance organizations will perceive a better organizational communications climate than senior NCOs in centralized maintenance organizations.

12. Senior NCOs in decentralized maintenance organizations will perceive a better general organizational climate than senior NCOs in centralized maintenance organizations.

13. Senior NCOs in decentralized maintenance organizations will exhibit a h' er need for enrichment than senior NCOs in centralized maintenance organizations.

14. Senior NCOs in decentralized maintenance organizations will have higher job performance goals than senior NCOs in centralized maintenance organizations.

15. Senior NCOs in decentralized maintenance organizations will perceive less work repetition than senior NCOs in centralized maintenance organizations.

16. Senior NCOs in decentralized maintenance organizations will perceive more opportunities for advancement and recognition than senior NCOs in centralized maintenance organizations.

17. Senior NCOs in decentralized maintenance organizations will exhibit more pride than senior NCOs in centralized maintenance organizations.

18. Senior NCOs in decentralized maintenance organizations will perceive more job-related (related to but not directly associated with the job itself) satisfaction than senior NCOs in centralized maintenance organizations.

II. Literature Review

Overview

This chapter will address three broad areas. First, there will be a discussion of the nature and causes of job satisfaction, highlighting the major studies conducted in this area. Next will be a review of significant research dealing with the impact of organizational structure on job satisfaction. Finally, there will be a discussion of the two distinctly different organizational structures that currently exist in the Air Force's aircraft maintenance organizations. The combination of these discussions will provide the foundation for this research effort.

Job Satisfaction

Introduction. Research investigating the nature and causes of job satisfaction has been extensive, dating back to the early 1900s. Edwin Locke estimated that over 3,350 articles (or dissertations) have been written on the subject of job satisfaction (21:1297). This proliferation of research on the subject has presented major obstacles to attempts to produce a definitive listing of the "causes" of job satisfaction. Each research effort presents a new or modified set of operational definitions

which makes it difficult to correlate the findings of one study with another. The purpose of this section of the literature review is to provide a synopsis of some of the more significant research on the subject of job satisfaction and to develop a composite of variables that have an impact on job satisfaction.

Historical Perspective. In Locke's article on the nature and causes of job satisfaction, he presents an outstanding overview of the evolution of thought about what factors are thought to influence job satisfaction. The first era of this evolution was defined by Locke as the Physical-Economics School which "emphasized the role of the physical arrangement of the work, physical working conditions, and pay" (21:1300). The person most readily associated with this school of thought is Frederick W. Taylor. Taylor, considered by many to be the father of the scientific management of work, was convinced that, through more efficient work procedures, the overall productivity of an organization could be increased. This would, in Taylor's view, reduce the friction that existed between labor and management and improve the economic well-being of both parties (7:84-85). Contained as a part of Taylor's premise was the assumption that a worker who was performing a job efficiently, receiving higher pay, and was less physically tasked would be both more satisfied and more productive (21:1298). Taylor was also one of the

first to attribute the presence of adequate pay to job satisfaction.

According to Locke, the next era in the evolution of thought on job satisfaction was the Social (or Human Relations) School. The cornerstones of this school of thought were supervisor-employee relations, work group interactions, and the impact of supervision on employee satisfaction (21:1300). The Hawthorne study of the late 1920s was the first research to find a link between workers' perceptions of their worth and the concern that management shows for the workers. It also found that work group interaction was important in shaping an employee's attitudes and productivity (7:293-294). These two findings highlight the thrust of the work during the period of time that the Human Relations School of thought was predominant. Employees' attitudes and, ultimately, their job satisfaction, is shaped by: (1) their relationships with supervision and (2) their relationship with their work group/peers.

Locke's final step in the evolution of thought about job satisfaction is what he calls the Work Itself (or Growth) School. The prevalent thought during this time, which Locke contends includes the present, is that job satisfaction can be attained through "growth in skill, efficiency, and responsibility made possible by mentally challenging work" (21:1300). Many of the researchers whose

names are most readily identified with research on motivation and job satisfaction are associated with this school of thought. Herzberg's two-factor theory and Hackman and Oldham's job characteristics model are two of the classical research efforts that emphasize the work itself and the importance of growth to employee job satisfaction.

Herzberg's Two-Factor Theory. Frederick Herzberg, Barbara Snyderman, and Bernard Mausner's classical study in 1959 on 200 engineers and accountants resulted in two lists of factors that they deemed to be of importance in determining job satisfaction (see Figure 1). The first list of factors, called hygiene factors, were found by the research team to cause dissatisfaction when not present but did not provide increased satisfaction when present. The second list of factors, called motivation factors, were found to cause increased satisfaction when present but were not a source of dissatisfaction when not present (7:316). The conclusion made by these three researchers was that to increase employee job satisfaction, an organization should increase the presence of the motivational factors (satisfiers) and decrease the presence of negative aspects of the hygiene factors (dissatisfiers).

There have been many critics of the Herzberg two-factor model. The population used consisted mainly of engineers and accountants, and has been said to not be representative of "blue collar" workers. The methodology

Hygiene Factors	Motivational Factors
company policy and administration	achievement
technical supervision	recognition
interpersonal relations with supervisors	advancement
interpersonal relations with peers	the work itself
interpersonal relations with subordinates	the possibility of personal growth
salary	responsibility
job security	
personal life	
work conditions	
status	

Fig. 1. Herzberg's Two-Factor Model (7:316)

of the study has also been criticized as an oversimplification of such a complex issue as job satisfaction. Another widely held criticism of the results of the study contends that an individual's internal thought processes causes them to attribute sources of satisfaction with their own achievements. On the other hand, sources of dissatisfaction might be attributed to variables beyond the control of the individual, such as company policy, in order that the individual is not forced to face up to his/her own potential shortcomings (7:318).

Studies by Frank Friedlander in 1963 and 1964 found that there were, indeed, intrinsic (part of the job) and extrinsic (external to the jcb) factors that influence job satisfaction in a way similar to Herzberg's hygiene (extrinsic) and motivational (intrinsic) factors (11:391). However, the relationships were found to be much more complex than postulated by Herzberg and his team; providing further criticism that Herzberg's model oversimplified the time relationships (12:249).

A study by Dunnette, Campbell, and Hakel alsc found the Herzberg model to be an oversimplification of the causes of job satisfaction. Their study found that certain job dimensions such as achievement, responsibility, and recognition were important for both satisfaction and dissatisfaction. Their conclusion, based on their study and a review of similar studies of Herzberg's theory, was that the two-factor model should be ". . . laid to rest. . ." based on its ". . . grossly over-simplified portrayal of the mechanism by which job satisfaction or dissatisfaction comes about" (9:143).

Although the methodology of the Herzberg study has endured substantial criticism over the years, its contribution to the study of job satisfaction and motivation is still significant. Its value is in its emphasis on the importance of satisfying growth needs in employees as a prerequisite to employee satisfaction and also on the

fact that satisfying those growth needs can come from the work itself (21:1318).

Job Characteristics Model. In the mid-1970s, researchers Richard Hackman, Greg Oldham, Robert Janson and Kenneth Purdy developed a job characteristic model "in an attempt to extend, refine, and systematize the relationships . . . between job characteristics and individual responses to work" (13:255). Their model (see Figure 2) depicts five core job dimensions that, when present, lead to critical psychological states, which, in turn, lead to personal and work outcomes to include job satisfaction. The five core job dimensions are:

1. skill variety - the number of tasks involved in doing the job

2. task identity - the degree to which a task can be seen as a "whole" job

3. task significance - the degree to which a job can be considered to have an impact

4. autonomy - the degree of freedom that an individual has to complete a job

5. feedback - the degree to which an employee receives information on how well they are performing their job (7:331; 13:257-258).

The scores obtained from individuals' perceptions of the degree of the five core job dimensions present in

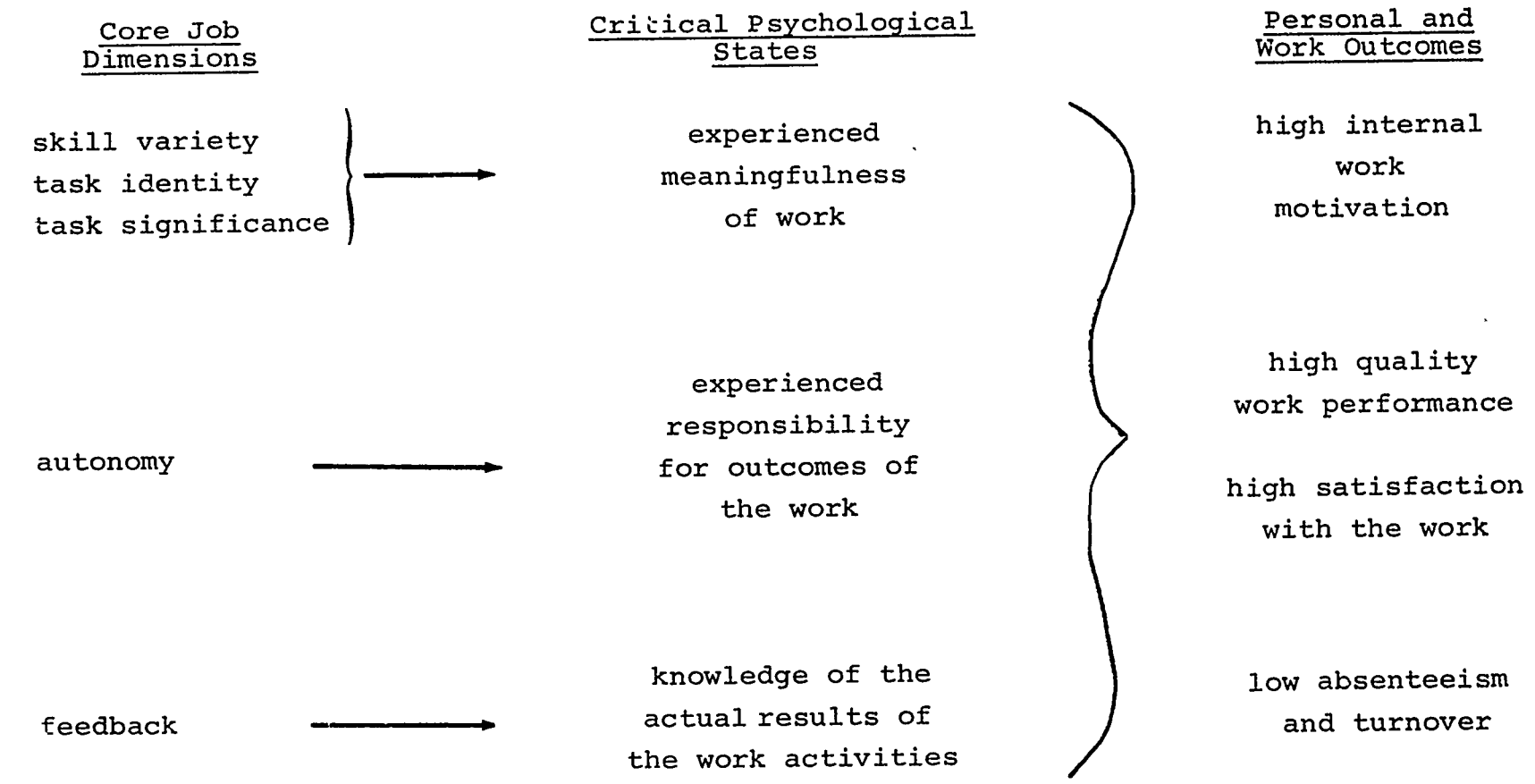

Fig. 2. Hackman and Oldham's Job Characteristics Model (13:256)

their work environment result in a variable called the "Motivating Potential Score (MPS)." The MPS was defined as:

$$\text{Motivating Potential Score} = \frac{\text{skill variety} + \text{skill identity} + \text{task significance}}{3} \times \text{autonomy} \times \text{feedback}$$

(13:258)

The score then provided a relative measure of the ability of a job to motivate and provide job satisfaction.

Besides identifying job characteristics important to job satisfaction, the other important subject dealt with by Hackman and Oldham's study was growth need states. They concluded that redesigning the job to increase the positive nature of the core job dimensions would only increase job satisfaction and motivation if the individual had high needs for growth and development (13:258). They were unable, however, to find any evidence to suggest that people with low growth need states would react negatively to a job that had been redesigned to offer more potential for individual growth (13:274).

Organizational Climate and Job Satisfaction. The question of whether organizational climate has an impact on employee job satisfaction is difficult to address. Payne, Fineman, and Wall cite a study done by Johannesson in 1971 that concluded that organizational climate and job

satisfaction were redundant concepts (25:46). On the other hand, other studies were reviewed by these three authors which provided sufficient evidence for them to state that the two concepts are distinctly separate (25:47). However, the authors cite several studies that ". . . have shown that the individual's perception of organizational climate is related to his job satisfaction. . ." (25:49). Therefore, organizational climate appears to be a factor that influences job satisfaction.

Autonomy and Job Satisfaction. The presence of autonomy in the work environment is widely considered as a factor that influences job satisfaction. Hackman and Oldham listed it in their model with a caution it will provide increased satisfaction only in those having high growth needs for increased responsibility. Katzell and Yankelovich summarized their findings on autonomy by stating that

> . . . increased autonomy . . . is an element in job enrichment that may, given the right workers and the appropriate conditions, help enhance job satisfaction and productivity. (18:76)

Like Hackman and Oldham, they also provided a caution that increased autonomy will result in increased job satisfaction only when the individual has a need for increased responsibility (18:75). Srivastva and Salipante conducted a review of the empirical literature on the variables that impact job satisfaction and found that autonomy

". . . received the most consistent support of any variable in the review" (32:51).

Consequences of Job Satisfaction. The potential benefits of increased job satisfaction to management are substantial and, in some cases, surprising. Edwin Locke's article on the nature and causes of job satisfaction summarizes research done on a variety of consequences of job satisfaction. Increased job satisfaction has been found to be positively correlated with employees' attitudes towards their family, self-confidence, and longevity (21:1328-1329). Job dissatisfaction, on the other hand, has been found to be positively correlated with fatigue, level of serum cholesterol in the blood, coronary disease, absenteeism, turnover, and complaints and grievances (21:1328-1332). Research efforts to show a relationship between job satisfaction and productivity have been unsuccessful (30:14; 21:1332). However, it is not unreasonable to assume that consequences associated with dissatisfaction would, in an indirect way, have a negative impact on the productivity of an employee. For that reason, the employer should have a definite interest in doing everything possible to insure the satisfaction at work of their employees.

Conclusions. As this subjective review of the literature on the nature and causes of job satisfaction has

shown, the body of research on the subject is large. Because there is no consensus on the cause(s) of job satisfaction, conclusive summaries of the various elements that make up job satisfaction are not available. Consequently, any model or composite of factors is necessarily somewhat subjective. However, it is possible, in a very broad sense, to establish general categories that the many determinants of job satisfaction that have been discussed can be broken into. The work itself is mentioned by Taylor in the sense of the physical characteristics of the job and later by researchers to include Hackman and Oldham in the context of how the worker perceives the value of his job. Additionally, organizational climate and autonomy have been widely investigated as potential sources of job satisfaction. Work group relationships have also been researched as another source of job satisfaction. In fact, Locke, in the article discussed earlier in this section, contends that an entire period of time in the evolution of thought on job satisfaction centered on the impact of social interactions on workers' job satisfaction. Hackman and Oldham's discussion of an individual's need for enrichment as a moderating variable in determining an individual's level of job satisfaction warrants the inclusion of need/opportunity for personal growth as a category for job satisfaction determinants. Finally, recognition/opportunity for advancement has been the

subject of several discussions on job satisfaction, and are, in fact, listed as motivational factors in Herzberg's two-factor model of job satisfaction/motivation. These broad categories of determinants of job satisfaction will be used in the next chapter to develop a model of job satisfaction.

Impact of Organizational Structure on Job Satisfaction

Introduction. The amount of control necessary to effectively run an organization has been widely studied and discussed. For many years, it was thought the most effective organizational structure was one with a small span of control for supervision and a high degree of job specialization for workers. The focus of these early theories of organizational structure was on the organization, not the people within the organization (16:45).

Research in the Civilian Sector. In 1950, James Worthy, in a study conducted while he was with the Sears and Roebuck Company, laid the foundation for what is now a long-standing dispute over the relative benefits of "tall" versus "flat" organizations. Worthy defined tall organizations as those that tend to have many levels of control, centralization of decision making, and job specialization (35:170). This basic definition has been applied by many other research studies that compare tall versus flat organizational structures. Worthy found that

> . . . flatter, less complex structures, with a maximum of administrative decentralization, tend to create a potential for improved attitudes, more effective supervision, and greater individual responsibility and initiative among employees. (35:179)

Worthy went on to say that flat organizations encourage "self-expression" and "creativity" with a corresponding increase in job satisfaction (35:179). Worthy also found that overspecialization of jobs led to unchallenging jobs, workers who were unable to see the whole process, and, in the end, dissatisfaction (35:175). Although some say Worthy's study lacks empirical proof, it is considered to be the benchmark study of the effect of organizational structure on job satisfaction.

A study by Carpenter in 1971 offered empirical support for Worthy's theories when his study of Texas public school teachers revealed higher perceived job satisfaction among teachers in flat versus tall organizations (3:463). The majority of the studies that followed Worthy's, however, have offered only conditional empirical support for the superiority of flat organizations. Meltzer and Salter, in a 1962 study of 704 members of the American Physiological Society, substantiated Worthy's premise that the number of organizational levels and job satisfaction were negatively correlated (22:360). However, when the size of the organization was held constant, the relationship no longer became significant (22:360). A 1964 study of 900 managers throughout the U.S. by Porter

and Lawler found that managerial satisfaction was, in fact, higher in flat organizations but only when the size of the organization was less than 5000 employees. When the organization employed over 5000 people, job satisfaction was, in fact, higher in the tall organization (26: 146-147). The study was duplicated in 1965 by Porter and Siegel, except that the sample was 3000 middle and top level managers worldwide. The results resembled those of Porter and Lawler's, with the exception that job satisfaction was not greater in the decentralized organizations with more than 5000 employees (28:388-389).

In 1965, Porter and Lawler collaborated on a major review of the previously published literature on the subject of organizational structure and its relationship to different attitudinal variables. They found that most articles supported the claim that decentralization offers increased autonomy and, in turn, increased job satisfaction. However, the four studies they found that actually involved empirical versus conceptual comparisons of centralized versus decentralized organizations found quite the opposite to be true. These four studies showed no clear link between job satisfaction and the degree of centralization in an organization (27:45-46). Edward Levine, in a 1973 study, did find that the more control a group had over decision making, the higher the group member's job satisfaction (20:186). Ivancevich and

Donnelly, in a 1975 study of trade salesmen, found salesmen in flat organizations had more job satisfaction in terms of self-actualization and autonomy. However, they could find no significant differences in the areas of opportunities for innovativeness and social interaction, security, or pay. They concluded that, though there appeared to be some differences in job satisfaction in salesmen in flat organizations, it was "erroneous to conclude that the flatter organization is unequivocally superior to tall or medium organizations. . ." (17:279). A study by Weiss failed to find any significant difference in personnel statistics such as labor turnover, absenteeism, accidents, grievances, etc. in centralized versus decentralized organizations. However, Weiss did note the direction of the differences was in favor of the decentralized organizations and he concluded ". . . there is some evidence of the effectiveness of delegating the power and decision-making functions. . ." (33:40-41).

Research in the Military Sector. The body of research on the subject of job satisfaction and organizational structure in the military is extremely limited. In 1978, a research study by Captains Olson and Foster explored the effects of the implementation of the Production Oriented Maintenance Organization (POMO) concept on the job satisfaction of aircraft maintenance personnel at a base that had just converted to the new decentralized

maintenance organizational structure. POMO was an early version of the decentralization process that would, in 1983, become the Combat Oriented Maintenance Organization (COMO). The scores for the personnel at the unit that had converted were compared to those of individuals at bases that had not yet converted to the decentralized approach, and no significant difference was found in the level of job satisfaction between the two populations (10:107). A possible explanation for the lack of a difference might be the fact that earlier efforts (such as POMO's limited changes) to improve aircraft maintenance were largely structural, and it was not until the later phases of the conversion, and the advent of COMO, that decision making was decentralized to the levels found today (4:65). Captain Richard Williams conducted a study in 1985 comparing job satisfaction of aircraft maintenance officers in centralized versus decentralized aircraft maintenance organizations. His study revealed no statistically significant difference in job satisfaction between the two populations (34:61).

There has been research conducted that indicates the potential for increased job satisfaction, even though the two previous studies seem to indicate a lack of correlation between organizational structure and job satisfaction in the military. A 1977 study by Perceptronics, Inc., conducted for the Department of Defense, found that, among

Army helicopter mechanics, job enrichment (increased autonomy, increased job scope, etc.) would increase the motivation of the mechanics (8:5-6). The study also found that helicopter maintenance technicians displayed relatively high growth need states, an important requirement for the successful use of job enrichment (8:5-6). In other words, not only would the mechanics' job satisfaction improve by increasing such things as autonomy, job scope, etc., but the technicians also had a desire to have their jobs expanded in these ways. Past research has found that not all individuals desire the increased autonomy and decreased supervision associated with decentralized organizations and so would not experience increased job satisfaction if presented with more autonomy and authority (18:75).

Conclusions. The literature reviewed in this section does appear to indicate a negative relationship, under certain conditions, between the number of levels within a managerial hierarchy and job satisfaction. Many of the research findings are conditional, dependent on organizational size, growth needs of the individuals involved, and even the individual's level of involvement within the organization. The limited amount of research on this subject within the military environment has failed to show any significant difference in job satisfaction between individuals in decentralized versus centralized maintenance

organizations. There has been at least one research effort (Perceptronics, Inc. study), though, that indicates a desire for individuals in one group of maintenance organizations to have more autonomy. Further research is necessary to explore the effects of decentralization on various subgroups within the Air Force aircraft maintenance population.

Comparison of Centralized versus Decentralized Aircraft Maintenance Organizational Structures

Introduction. There are two distinctly different organizational concepts that are predominantly used within the Air Force's aircraft maintenance organizations. These two organizational structures, decentralized control and centralized control, are used in different operational commands within the Air Force, depending on the command's specific requirements.

This section will discuss these two organizational structures and how they function. The various regulations that govern the implementation of these concepts will be discussed as will be a brief explanation of the structure of each organization. Finally, the relative merits of each organizational structure, as they are implemented in the Air Force's operational commands, will be presented.

Air Force Regulation 66-1. Basic policy for maintenance management is contained in Air Force Regulation

(AFR) 66-1, Maintenance Management Policy. The regulation was created in 1983 by the consolidation of Air Force Manual (AFM) 66-1, Maintenance Management Policy and Air Force Regulation (AFR) 66-5, Production Oriented Maintenance Organization. AFM 66-1 had provided policy and guidance for centralized maintenance organizations, and AFR 66-5 was the regulation that governed decentralized aircraft maintenance organizations. The new directive, AFR 66-1, offers very broad philosophical guidance regarding maintenance management. In fact, in the opening chapter of AFR 66-1, it says "this policy is purposely limited and general to give major commands . . . latitude in tailoring and streamlining command management policy and procedures" (6:5). In Chapter 7 of the regulation, titled "Maintenance Organization Policy," the responsibility for determining the specific organizational structure of aircraft maintenance organizations is delegated to the major commands (6:24).

The Strategic Air Command, Military Airlift Command, and Air Training Command have each published command regulations that define the centralized organizational structure found in their aircraft maintenance organizations. Strategic Air Command Regulation (SACR) 66-9, Military Airlift Command Regulation (MACR) 66-1, and Air Training Command Regulation (ATCR) 66-XX all provide guidance for centralized aircraft maintenance. Multi-Command

Regulation (MCR) 66-5, Combat Oriented Maintenance Organization, contains policy and guidance for the four major commands (Tactical Air Command, United States Air Forces Europe, Pacific Air Forces, and Alaskan Air Command) that use the decentralized aircraft maintenance organizational concept. Each command is authorized a separate chapter within MCR 66-5 to delineate command-unique policies and procedures.

Centralized Aircraft Maintenance Organizational Structure. The three commands (SAC, MAC, ATC) that work under the centralized maintenance concept are organized essentially the same. The basis for the concept is specialization with centralized control. There are four squadrons in the centralized maintenance organization (see Figure 3). The Organizational Maintenance Squadron is responsible for the launching, recovering, and minor maintenance of the wing's aircraft. The squadron is made up of crew chiefs who rely on specialist support from the other three squadrons for anything more than the more general, minor repairs. The Avionics Maintenance Squadron, Field Maintenance Squadron, and Munitions Maintenance Squadron (where applicable) provide centralized specialist repair support for the wing's aircraft. Specialists in these three squadrons are dispatched to the flightline for on-equipment maintenance or work in a shop environment doing off-equipment maintenance. The entire maintenance

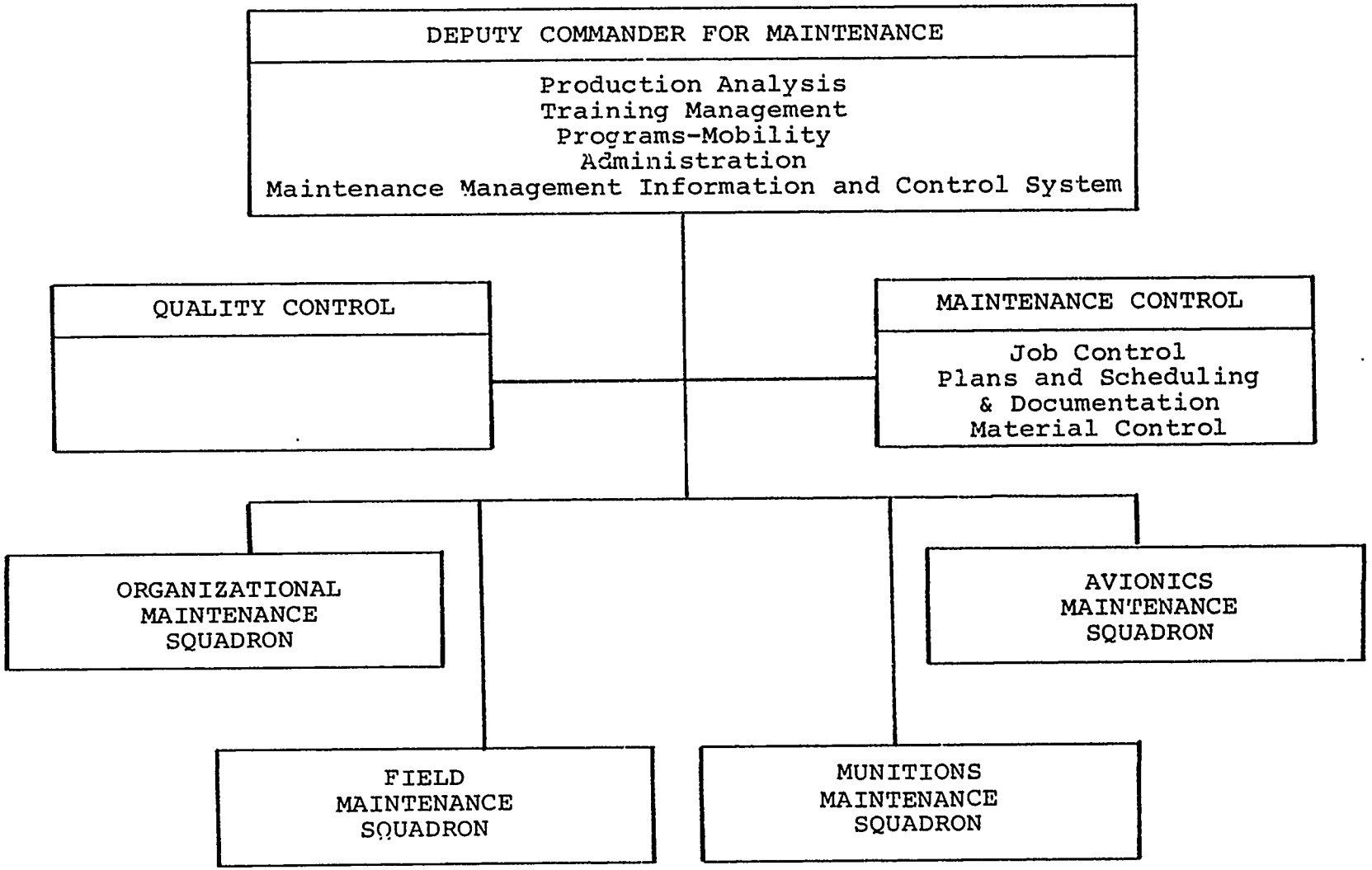

Fig. 3. Centralized Aircraft Maintenance Organization

effort in a centralized maintenance organization is controlled by a single function called Job Control. The establishment of priorities for maintenance, dispatch of specialists to the flightline, and flying schedule adjustments are all made from this centralized point of control. The entire maintenance production effort is managed from Job Control and the other staff agencies included in the Deputy Commander for Maintenance (DCM) staff. Because of the substantial responsibility for the success of the maintenance effort that is placed on Job Control, the level of experience of the people who work in Job Control is quite high. The most experienced maintenance officers and senior NCOs can usually be found assigned to Job Control in a centralized maintenance organization.

Decentralized Aircraft Maintenance Organizational Structure. The approach used to manage maintenance production in a decentralized maintenance organization, in terms of organizational structure and level of decision making, differs sharply from the centralized approach. In the decentralized approach, used by the commands that make up the Tactical Air Forces (TAC, USAFE, PACAF, and AAC), the specialists are decentralized and co-located with the aircraft crew chiefs in Aircraft Maintenance Units (AMU). "The AMU, therefore, is the basic building block for the deployable aircraft maintenance element" (5:1-1). This decentralization of specialist support allows for the

consolidation of four squadrons into three (see Figure 4). The Aircraft Generation Squadron is made up of two or more Aircraft Maintenance Units (5:1-1) consisting of crew-chiefs, munitions specialists, aircraft systems specialists, and avionics systems specialists. These technicians perform virtually all of the on-equipment maintenance that is required to support the aircraft that are the responsibility of an AMU. The other two squadrons, Component Repair Squadron and Equipment Maintenance Squadron, provide primarily off-equipment maintenance support to the flightline plus other specialized skills such as munitions repair, heavy airframe repair, and major inspections.

The decentralization of specialists into Aircraft Maintenance Units served several purposes. The Tactical Air Force (TAF) mission requires frequent deployment of fighter aircraft to locations worldwide. Under the centralized maintenance concept, specialists that were required to mobilize in support of the deployment were drawn from the large pool of centralized specialists in FMS, AMS, or MMS. In most cases, the specialists had very little opportunity to blend with the crewchiefs from OMS into a cohesive unit until the deployment had begun. This caused inefficiencies during deployments until the mobility team began to develop a working rapport. Under the decentralized maintenance concept, units are deployed as a whole. In other words, the aircraft assigned to a fighter

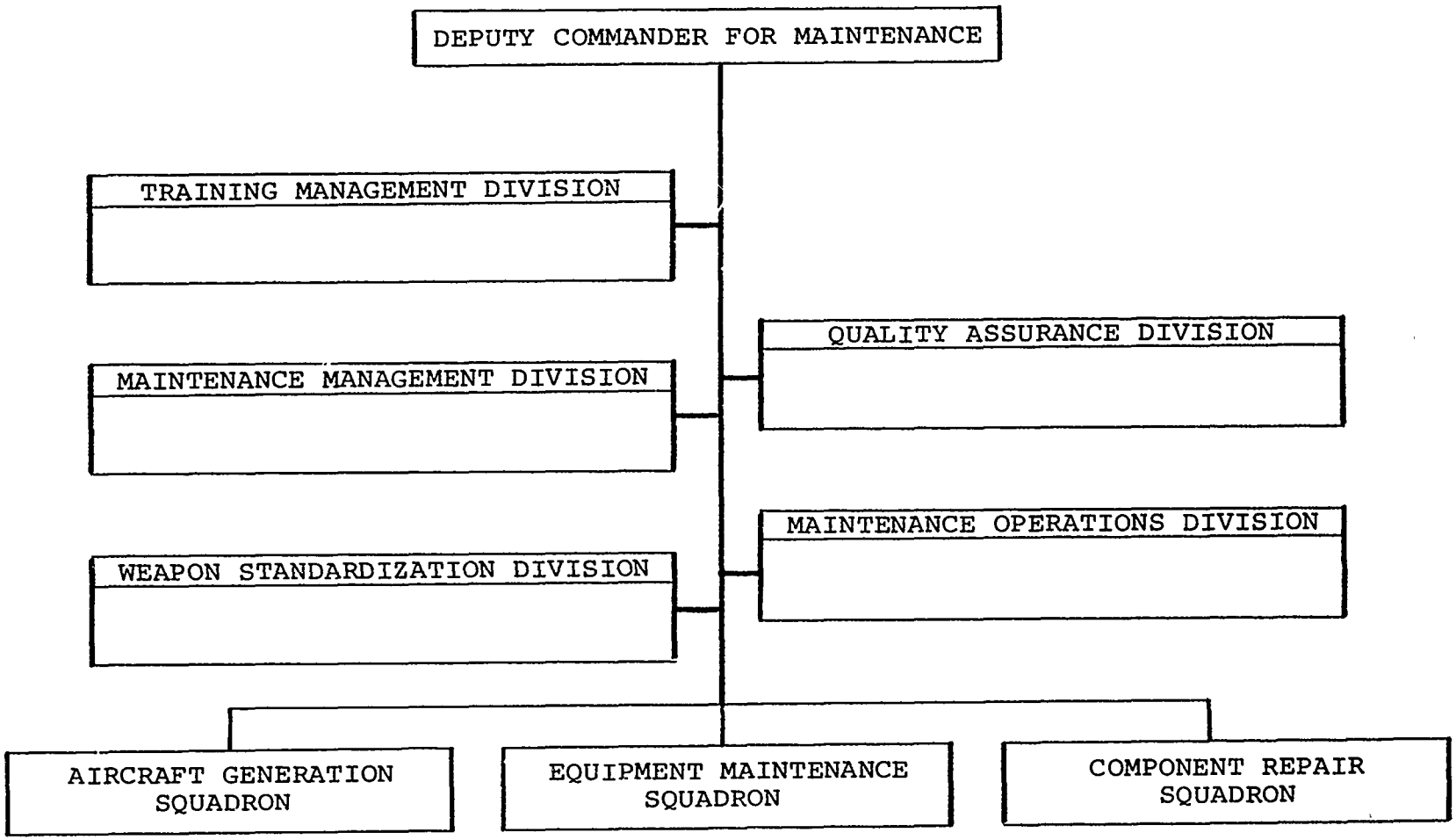

Fig. 4. Decentralized Aircraft Maintenance Organization (5:1-6)

squadron, along with the associated AMU, will deploy. The specialists have worked daily with the other members of the AMU and many of the teamwork issues associated with using support from centralized specialists were eliminated. A Deputy Commander for Maintenance at one of TAC's fighter wings has noticed during wing deployments that

> . . . since the team members have been working together and know each other well, they find it easier to help each other. They complement each other, like a left hand and a right hand. (29:38)

The second result of decentralized specialist support is the decreased need for centralized control of maintenance production. With specialist dispatch being handled by the AMU, the control exercised by Job Control and the other DCM staff agencies was diminished substantially. In fact, Job Control has been redesignated the Maintenance Operations Coordination Center, and has become, primarily, a monitoring or "scorekeeping" activity. The management of maintenance production in a decentralized maintenance organization takes place predominantly within the AMU. The AMU Officer-in-Charge (OIC), Noncommissioned-Officer-in-Charge (NCOIC), Production Superintendent, and other key senior NCOs are tasked with managing the maintenance effort. The result is that those managers who are assigned the responsibility for maintenance production now have the authority to execute that responsibility.

Objective of Decentralized versus Centralized Aircraft Maintenance Organizations. MCR 66-5 summarizes the objective of Combat Oriented Maintenance Organization (COMO) by stating that, "The objective is to provide structure with the mobility and flexibility to survive in a dispersed environment and sustain combat operations" (5:1-1). To do this, the concept must ". . . provide the necessary capability for decentralized, small unit autonomy during dispersed operations" (5:1-1). Based on the mobilization requirements that are a part of the TAF's mission, decentralized maintenance support was necessary for efficient operations. Major General Jerry D. Holmes, the Deputy Chief of Staff, Logistics for TAC makes this point succinctly.

> Centralization was wrong for TAC. To a lesser degree, the same was true for other tactical forces such as USAFE and PACAF, although some of their units also fight from their home bases. (29:36)

In addition, the decentralized organization was particularly well-suited to meet the requirements of a high sortie generation environment that is anticipated for the Air Forces' fighter forces (5:1-1).

The commands that use the centralized maintenance concept are, on the other hand, less concerned with mobilization of their assets and high sortie rates as they are with efficient use of their limited resources (34:37-38). Deployments of entire units are uncommon in these commands, so the requirement for squadron-sized units to maintain

autonomous operations at a dispersed location does not drive their maintenance organizational structure. Also, as mentioned earlier, the production of large numbers of sorties per aircraft is not a normal mission of the commands that use the centralized organizational approach and, therefore, there is not the requirement for the more flexible and responsive decentralized approach.

Conclusions. One organizational structure is not necessarily "better" than the other structure. Both concepts were developed based on the mission requirement of the specific commands using it. To the TAF, the requirement to be mobile dictates decentralized control and autonomous operations. For the other three commands with limited resources and missions that are not driven by mobility requirements, centralized specialist support and a centralized decision-making process was deemed to be the most efficient.

There have been recent initiatives in the Strategic Air Command to implement some of the decentralization aspects of COMO. Nicknamed ROLS, Reliability Oriented Logistics Support, the program is testing the feasibility of decentralizing specialist support and creating B-52 AMUs and KC-135 AMUs within SAC's bomber and tanker wings. It is still too early in the testing of this new concept for SAC to determine its impact on productivity, readiness, or job satisfaction.

Summary

The three topics covered in this chapter highlight the background issues upon which this research effort was conceived. The literature reviewed on the nature and causes of job satisfaction formed the foundation for the job satisfaction model presented in the next chapter. The review of the literature on the impact of organizational structure on job satisfaction helped form the foundation for the hypotheses presented in the previous chapter. Finally, the discussion on the organizational structures found in the Air Force's maintenance organizations substantiated the supposition that both decentralized and centralized organizational structures do exist in the Air Force's aircraft maintenance organizations.

III. Methodology

Overview

The research hypotheses proposed in this research effort were tested on a sample of Air Force senior NCOs in aircraft maintenance career fields. The sample was drawn from respondents to the Air Force's Leadership and Management Development Center's Organizational Assessment Package (OAP). The data collected from this sample has been analyzed using two different statistical techniques. The overall hypothesis of job satisfaction has been addressed using the multi-variate Hotelling's T^2 test, while the individual hypotheses on the different characteristics that comprise job satisfaction were tested using the Studentized t-test.

This chapter presents the specific methods and techniques used in the collection and analysis of data for this effort.

First, the Organizational Assessment Package is described. Evidence is presented that validates its usefulness as a survey instrument. Next, a job satisfaction model is presented that will be drawn from data available in the OAP data base. The research sample is then described and, finally, a description of the statistical techniques used in this study is presented.

Data Collection

The Organizational Assessment Package. The Organizational Assessment Package (OAP) is the survey instrument used in this study. The OAP was developed and is administered by the Air Force Leadership and Management Development Center (LMDC) at Maxwell AFB, Alabama. The OAP is administered, upon request of a unit commander, to Air Force personnel worldwide to provide a measure of the organizational climate within a unit. The objectives of the OAP are described in LMDC's OAP User Guide. They are to:

> 1. inform commanders, managers, supervisors, and functional staff agencies of the nature, magnitude, level, scope, and source of current and potential leadership and management strengths and problems.
> 2. provide inputs to Air Force education and training programs, to increase instructional effectiveness, and to provide inputs for curriculum development.
> 3. provide feedback for improving the effectiveness of the LMDC Management Consultation teams.
> 4. develop LMDC training programs for management consultants to expand their consulting capabilities in areas which would best serve needs of the Air Force and specific organizations.
> 5. provide a wide, varied, and creditable data base for research in the fields of leadership and management as well as research into jobs and career fields.
> 6. provide an Air Force-wide management information system for decision making. (2:1)

The OAP survey is a 109-question instrument that includes both demographic and attitudinal questions. The attitudinal questions cover a range of topics from work group relationships to perceived task autonomy to organizational climate. The respondents use an answer scale

that ranges from 1, indicating strong dissatisfaction or disagreement, to 7, which indicates strong satisfaction or agreement. The questions are then grouped to form 24 factors (2:1). These factors are listed in Figure 5. The questions that make up each factor can be found in the appendix.

The specific OAP factors used in this study are discussed in a subsequent section of this chapter.

OAP Validity. The OAP has been validated by several Air Force studies as a reliable survey instrument. Lt Col Lawrence Short, in a 1985 LMDC research report on the OAP, references a study by Short and Hamilton in 1981 that found the reliability of the 25 primary OAP factors to be from "acceptable to excellent" (31:19). Short also cites a 1982 study by Hightower and Short that ". . . provided support for the consistency of the OAP revised factor structure across both functional area and demographic groups" (31:37). In addition, several revisions have been made to the OAP since its first field tests in 1978. These revisions have both improved the content of the instrument and increased access to the data base created by OAP survey responses (31:40-42). These studies also found the individual factors within the survey not to be significantly correlated with each other. In other words, the factors used in the OAP can be considered independent of one another.

Factor	Name
800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
805	Performance Barriers/Blockades (Work Support)
806	Need for Enrichment Index (Job Desires)
807	Job Motivation Index
808	OJI Total Score
809	Job Motivation Index
810	Job Performance Goals
811	Pride
812	Task Characteristics
813	Task Autonomy
814	Work Repetition
816	Desired Repetitive Easy Tasks
817	Advancement/Recognition
818	Management & Supervision
819	Supervisory Communications Climate
820	Organizational Communications Climate
321	Work Group Effectiveness (Perceived Productivity)
822	Job-Related Satisfaction
823	Job-Related Training
824	General Organizational Climate
825	Motivation Potential Score

Fig. 5. Organizational Assessment Package Factors (2:2)

The Job Satisfaction Model. The factors contained within the OAP are designed to evaluate a number of components of organizational climate, including job satisfaction. Based on the literature review on the nature and causes of job satisfaction, 17 of the 24 factors will be used to define a model of job satisfaction that will evaluate the two populations of senior NCOs. The factors contained within the model have been broken down into categories as depicted in Figure 6.

These 17 factors comprised the job satisfaction model used to evaluate the level of job satisfaction in the survey respondents.

Description of the Sample

The Selection of Survey Respondents. The two samples of senior NCOs were selected based on their participation in the Organizational Assessment Package survey. The samples were sorted from the total population of OAP survey respondents and from each other using the demographic variables shown in Figure 7. The sorting process described in Figure 7 resulted in two samples of senior NCOs, one from decentralized organizations and one from centralized organizations. A total of 1039 senior NCOs from decentralized organizations and 495 senior NCOs from centralized organizations made up the samples used in this study.

Factor	Title
The Work Itself	
800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
805	Work Support
814	Work Repetition
818	Management and Supervision
821	Work Group Effectiveness
Organizational Climate	
819	Supervisory Communications Climate
820	Organizational Communications Climate
824	General Organizational Climate
Need/Opportunity for Personal Growth	
806	Job Desires (Need for Enrichment Index)
810	Job Performance Goals
Recognition/Opportunity for Advancement	
817	Advancement/Recognition
Autonomy	
813	Task Autonomy
Other	
811	Pride
822	Job-Related Satisfaction

Fig. 6. Job Satisfaction Model

Major Command Assigned

Decentralized - Tactical Air Command (TAC), Pacific Air Forces (PACAF), United States Air Forces, Europe (USAFE), and Alaskan Air Command (AAC).

Centralized - Strategic Air Command (SAC), Military Airlift Command (MAC), Air Training Command (ATC).

Air Force Specialty Code

Both Samples

431XX - aircraft maintenance
432XX - aircraft maintenance
423XX - aircraft systems maintenance
426XX - aircraft systems maintenance
462XX - munitions and weapons maintenance
32XXX - avionics systems

Rank

Both Samples

Master Sergeant (E-7)
Senior Master Sergeant (E-8)
Chief Master Sergeant (E-9)

Level of Assignment

Both Samples

assigned at the wing level in an aircraft maintenance organization

Time Period Covered

Both Samples

1 October 1980 to 30 June 1986

Fig. 7. Demographic Criteria for Survey Respondents

Demographic Information on Survey Respondents.

The survey respondents were largely male (Table 2) who ranked in age from 26 to greater than 50 years old (Table 3). The survey respondents' time in service ranged from 8 to greater than 12 years (Table 4), while the number of months in their presently assigned career field ranged from less than 6 months to greater than 36 months (Table 5). The responses to these demographic questions did not vary significantly between the two samples. In both samples, the significant majority of respondents were, not surprisingly, expecting to make a career of the Air Force (Table 6). The responses did range from "will continue in/with the Air Force as a career" to "will separate/terminate from the Air Force as soon as possible." The majority of senior NCOs in both samples responded that they supervised in excess of nine people (Table 7) and worked on day shift the majority of the time (Table 8).

TABLE 2

SEX OF SURVEY RESPONDENTS (BY SAMPLE)

	Decentralized	Centralized
Male	1036 (99.9%)	493 (99.6%)
Female	1 (.1%)	2 (.4%)
Total	1037	495

TABLE 3

AGE OF SURVEY RESPONDENTS (BY SAMPLE)

	Decentralized	Centralized
17-20 yrs	0 (0%)	1 (.2%)*
26-30 yrs	7 (.7%)	0 (0%)
31-35 yrs	241 (23.2%)	94 (19.0%)
36-40 yrs	550 (52.9%)	276 (55.8%)
41-45 yrs	184 (17.7%)	97 (19.6%)
46-50 yrs	45 (4.3%)	25 (5.1%)
> 50 yrs	12 (1.2%)	2 (.4%)
Total	1039	495

*Suspect validity of this response. Probably a mismark on the answer sheet.

TABLE 4

SURVEY RESPONDENTS' NUMBER OF YEARS IN AIR FORCE (BY SAMPLE)

	Decentralized	Centralized
< 1 yrs	0 (0%)	1 (.2%)*
8-12 yrs	12 (1.2%)	1 (.2%)
> 12 yrs	1025 (98.8%)	492 (99.6%)
Total	1037	494

*Suspect validity of this response. Probably a mismark on the answer sheet.

TABLE 5

SURVEY RESPONDENTS' NUMBER OF YEARS IN CAREER FIELD (BY SAMPLE)

	Decentralized	Centralized
< 6 months	3 (.3%)	4 (.8%)
6-12 months	12 (1.2%)	4 (.8%)
12-18 months	7 (.7%)	5 (1.0%)
18-36 months	20 (1.9%)	4 (.8%)
> 36 months	997 (96.0%)	478 (96.6%)
Total	1039	495

TABLE 6

SURVEY RESPONDENTS' CAREER INTENTIONS (BY SAMPLE)

	Decentralized	Centralized
Retire in 12 months	148 (14.3%)	93 (18.8%)
Career	724 (69.9%)	325 (65.8%)
Likely Career	74 (7.1%)	31 (6.3%)
Maybe Career	49 (4.7%)	26 (5.3%)
Probably not Career	0 (0%)	2 (.4%)
Separate	41 (4.0%)	17 (3.4%)
Total	1036	494

TABLE 7

NUMBER OF PEOPLE DIRECTLY SUPERVISED BY SURVEY RESPONDENTS (BY SAMPLE)

	Decentralized	Centralized
None	133 (13.0%)	58 (11.9%)
1	33 (3.2%)	12 (2.5%)
2	45 (4.4%)	20 (4.1%)
3	48 (4.7%)	28 (5.7%)
4 to 5	148 (14.5%)	67 (13.7%)
6 to 8	153 (15.0%)	79 (16.2%)
9 +	461 (45.2%)	224 (45.9%)
Total	1021	488

TABLE 8

SURVEY RESPONDENTS' WORK SCHEDULE (BY SAMPLE)

	Decentralized	Centralized
Days	624 (60.9%)	300 (61.0%)
Swings	62 (6.0%)	30 (6.1%)
Mids	17 (1.7%)	27 (5.5%)
Rotating	57 (5.6%)	37 (7.5%)
Irregular	248 (24.2%)	84 (17.1%)
Frequent TDY	17 (1.7%)	14 (2.8%)
Total	1025	492

An interesting difference in the two samples emerged on the question of how many meetings were conducted by the survey respondents' supervisors and the senior NCOs' perceived effectiveness of those meetings in solving problems. It appears that the supervisors of senior NCOs in the decentralized organizations hold group meetings on a more frequent basis than in the centralized organizations (Table 9), and these meetings are perceived to be more effective in solving problems in the decentralized organizations (Table 10).

TABLE 9

NUMBER OF GROUP MEETINGS HELD BY SUPERVISORS OF SURVEY RESPONDENTS (BY SAMPLE)

	Decentralized	Centralized
Never	59 (5.7%)	47 (9.6%)
Occasionally	162 (15.7%)	117 (23.8%)
Monthly	29 (2.8%)	13 (2.6%)
Weekly	535 (51.7%)	177 (36.0%)
Daily	230 (22.2%)	125 (25.5%)
Continually	20 (1.9%)	12 (2.4%)
Total	1035	491

TABLE 10

SURVEY RESPONDENTS' OPINION OF WHETHER GROUP MEETINGS SOLVE PROBLEMS (BY SAMPLE)

	Decentralized	Centralized
Never	122 (11.8%)	65 (13.2%)
Occasionally	401 (38.9%)	207 (42.2%)
Half the Time	239 (23.2%)	98 (20.0%)
Always	268 (26.0%)	121 (24.6%)
Total	1030	491

Inferences About the Population. The following limitations are noted regarding the two samples:

1. No inferences were made about the job satisfaction of the Air Force population in general based on the results of this study.

2. Since the two samples represent organizational structures in general, no inferences were made regarding the job satisfaction of senior NCOs in any specific major command.

Assumption. Based on studies presented that have evaluated the Organizational Assessment Package, the OAP is assumed to be a valid and reliable survey instrument.

indicated that a significant difference existed between the two samples on the particular measure being used.

Student's t-Test. The specific hypotheses made concerning the 17 factors that make up this study's job satisfaction model were evaluated using the Student's t-test. This test is designed to be used "when the significance of the difference between two independent sample means is to be evaluated" (14:10). In other words, when the hypothesis that task autonomy, for example, is higher in decentralized versus centralized organizations was tested using the Student's t-test, the mean values of the two samples' scores on that factor were compared. As with the Hotelling's T^2 test, the comparisons were done by evaluating the computed significance level. Also, as in the Hotelling's T^2 test, the level of significance selected as the criteria for a significant difference was .05.

Additionally, the samples' mean values for responses to individual questions within a factor were evaluated using the Student's t-test. If, for example, a Student's t-test on a factor resulted in a value that was significant, then the specific questions that comprise that factor were evaluated with the Student's t-test in an attempt to isolate the reason for the significance.

Summary

This chapter has defined the framework of the methodology used to test the hypotheses proposed by this study. The Organizational Assessment Package, a validated survey instrument, was used to evaluate the responses to questions by two samples of senior maintenance NCOs, one sample from decentralized organizations and the other from centralized ones. The questions were grouped into 17 factors that define a model of job satisfaction. The results were evaluated using two different statistical techniques. The overall hypothesis regarding differences, if any, between the samples was evaluated using the multi-variate Hotelling's T^2 test. The hypotheses on the individual factors that make up the job satisfaction model were evaluated using the Student's t-test. This combination of hypotheses and statistical techniques also formed a thorough analysis of the issue of the impact of organizational structure of job satisfaction in aircraft maintenance organizations.

IV. Research Results and Findings

Overview

Two samples of senior NCO survey responses were extracted from the Leadership and Management Development Center's (LMDC) data base. The Research and Analysis Branch at LMDC performed the statistical analysis using the SPSSX statistical package. The Hotelling's T^2 test was performed using the MANOVA command of the program, and the Student's t-tests on the individual factors were performed using the T-test command of SPSSX program.

The first section of this chapter will present the results of the multi-variate Hotelling's T^2 test using the job satisfaction model on both samples. In addition, the results of a follow-on test of a subpopulation of each sample will be outlined. In the next section, the results of the Student's t-test on the factors that make up this study's job satisfaction model will be presented. In addition, t-test results will be presented on the individual factors that were determined to be significantly different between the two samples. In the final section of this chapter, the research hypotheses offered at the initiation of this study are tested statistically.

Results of Hotelling's T^2 Test

Introduction. To review the basis for this test, it has been shown that the Hotelling's T^2 test is effective at detecting differences between two populations when the two populations are being compared on a number of different measures. The job satisfaction model, presented earlier, contains 17 factors that comprise the measures compared in the Hotelling's T^2 test. The results of the test are presented as a significance level signifying the difference between the centroid that is created for each population based on the mean value scores for each of the 17 factors. In addition, the SPSSX provides a follow-on test that allows for an evaluation of which factors contributed to any difference detected. The significance level used was .05.

Test Results. The Hotelling's T^2 test performed on the 17 factors resulted in a significance level of .029 which is less than the .05 significance level and so indicates a significant difference between the two populations. The follow-on test, as shown in Table 11, indicates that Factor 805, Work Support, was the only one of the 17 factors in the model that exceeds the .05 significance level.

Based on the research that had shown the importance of an individual's need for enrichment in determining their job satisfaction in a decentralized organization, an additional Hotelling's T^2 test was conducted. This test

TABLE 11

RESULTS OF THE HOTELLING'S T^2 TEST ON ENTIRE SAMPLES

Factor	Factor Title	Significance Factor
805	Work Support	.003
806	Need for Enrichment	.518
810	Job Performance	.999
811	Pride	.491
800	Skill Variety	.999
801	Task Identity	.912
802	Task Significance	.695
804	Job Feedback	.934
813	Task Autonomy	.240
814	Work Repetition	.271
817	Advancement-Recognition	.332
818	Management-Supervision	.248
819	Supervisory Communications Climate	.168
820	Organizational Communications Climate	.602
821	Workgroup Effectiveness	.662
822	Job-Related Satisfaction	.730
824	General Organizational Climate	.539

compared a subpopulation of the original samples on the 17-factor job satisfaction model. The subpopulations were those senior NCOs scoring in the upper 50 percent on the Factor 806, Need for Enrichment. The supposition was that this test, using the senior NCOs with the higher need for enrichment, might indicate a stronger difference than the comparison of the two overall populations. The Hotelling's T^2 test comparing these two populations resulted in a significance level of .028, once again, showing a significant difference between the two populations. The follow-on test, as shown in Table 12, indicated, as was the case earlier, that Factor 805, Work Support, was the only one of the 17 factors that contributed significantly to the difference between the two populations.

Conclusions. The results of the Hotelling's T^2 test showed that the two populations are significantly different from one another when compared against the 17-factor job satisfaction model. A comparison of two subpopulations, defined by the individuals with the highest needs for enrichment, also showed a significant difference. In both tests, the difference between the two populations appears to be caused largely by Factor 805, Work Support.

Results of Student's t-Test

Introduction. The Student's t-test can be used to measure a difference, if any, between two populations on a

TABLE 12

RESULTS OF THE HOTELLING'S T^2 TEST ON SUBPOPULATION OF SAMPLES

Factor	Factor Title	Significance Factor
805	Work Support	.023
806	Need for Enrichment	.262
810	Job Performance	.463
811	Pride	.486
800	Skill Variety	.438
801	Task Identity	.600
802	Task Significance	.540
804	Job Feedback	.243
813	Task Autonomy	.550
814	Work Repetition	.216
817	Advancement-Recognition	.525
818	Management-Supervision	.903
819	Supervisory Communications Climate	.774
820	Organizational Communications Climate	.273
821	Workgroup Effectiveness	.223
822	Job-Related Satisfaction	.737
824	General Organizational Climate	.950

single measure. The 17 factors that comprise the job satisfaction model were evaluated one at a time using the Student's t-test. Since, as mentioned earlier, the individual factors have not been proven to be significantly correlated with one another, 17 individual t-tests can be conducted without the reduction of the overall significance level that would occur if the factors were correlated with each other. As with the Hotelling's T^2 test, the significance level used as the criteria for significance was .05.

Test Results. The SPSS T-Test command provides a two-tailed level of significance for the computed t-value. Since the hypotheses proposed for each of the factors were directional, i.e. the value for population A would be higher than population B, the levels of significance presented by the SPSSX program were divided by 2.

The results of the t-tests on the 17 factors, as shown in Table 13, indicated that the mean values for Factor 805, Work Support, and Factor 813, Task Autonomy, were significantly different between the two populations. The negative t-value (-3.18) for Factor 805 showed that the difference between the two populations was in favor of the centralized structure. The positive t-value for Factor 813 (2.46) indicates that the difference was in favor of the decentralized structure.

The specific questions, or variables, that made up the two factors which showed a significant difference,

TABLE 13

RESULTS OF t-TESTS ON ALL FACTORS

Factor	Factor Title	t-Value	Significance Level
805	Work Support	-3.18	.001
806	Need for Enrichment	.87	.193
810	Job Performance	.00	.499
811	Pride	- .39	.347
800	Skill Variety	.45	.326
801	Task Identity	1.15	.125
802	Task Significance	1.06	.146
804	Job Feedback	1.18	.119
813	Task Autonomy	2.46	.007
814	Work Repetition	-1.54	.063
817	Advancement-Recognition	.39	.347
818	Management-Supervision	1.42	.078
819	Supervisory Communications Climate	1.37	.086
820	Organizational Communications Climate	-1.22	.112
821	Workgroup Effectiveness	- .20	.419
822	Job-Related Satisfaction	- .04	.483
824	General Organizational Climate	.63	.266

Factors 805 and 813, were then evaluated in an attempt to pinpoint where the difference on the factor might have originated. Factor 805 contained three questions (called variables in the Organizational Assessment Package). As shown in Table 14, the only variable whose mean value was significantly different between the two populations was Variable 208 (To what extent is the amount of work space provided adequate?). The differences for Variable 206 (To what extent do additional duties interfere with the performance of your primary job?) and Variable 207 (To what extent do you have adequate tools and equipment to accomplish your job?) were not significant. Factor 813 contained four variables/questions that were each tested using the Student's t-test. As shown in Table 15, all four variables' mean scores were significantly different between the two populations. Variable 270 (To what extent does your job provide a great deal of freedom and independence in scheduling your work?), Variable 271 (To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?), Variable 213 (To what extent does your job give you freedom to do your work as you see fit?) and Variable 214 (To what extent are you allowed to make the major decisions required to perform your job well?) were all significantly different in favor of the decentralized population.

TABLE 14

RESULTS OF t-TESTS ON VARIABLES WITHIN FACTOR 805

Variable	t-Value	Significance Level
206	1.57	.059
207	- .86	.196
208	-3.68	.000

TABLE 15

RESULTS OF t-TESTS ON VARIABLES WITHIN FACTOR 813

Variable	t-Value	Significance Level
270	2.32	.011
271	2.23	.013
213	1.89	.029
214	1.99	.024

Conclusions. The results of the Student's t-test on the individual factors that make up the job satisfaction model showed that two of the factors were significantly different between the two populations of senior NCOs. Factor 805, Work Support, was significantly different in favor of the centralized population (negative t-value) and Factor 813, Task Autonomy, was significantly different in favor of the decentralized population (positive t-value). An evaluation of the questions that

comprised these two factors showed that one question, Variable 208, caused the significant difference in Factor 805. All four questions contained in Factor 813 showed significant differences between the two populations.

Findings

Eighteen research hypotheses were proposed at the outset of this study to evaluate differences in job satisfaction between two populations of senior NCOs and also to measure any significant differences in variables that impact on job satisfaction. Those 18 hypotheses were tested statistically and the results follow:

Hypothesis 1. There is a difference in the level of job satisfaction between senior NCOs in decentralized aircraft maintenance organizations and senior NCOs in centralized maintenance organizations.

Hypothesis 1 was supported by the results of this study. The Hotelling's T^2 test showed there is a significant difference in the level of job satisfaction between the two populations.

Hypothesis 2. Senior NCOs in decentralized maintenance organizations will perceive higher task autonomy than senior NCOs in centralized maintenance organizations.

Hypothesis 2 was supported by the results of this study. There was a significantly higher level of task autonomy perceived by the senior NCOs in the decentralized organizations.

Hypothesis 3. Senior NCOs in decentralized maintenance organizations will perceive higher skill variety than senior NCOs in centralized maintenance organizations.

Hypothesis 3 was not supported by the results of this study. There was not a significant difference in perceived skill variety between the two populations.

Hypothesis 4. Senior NCOs in decentralized maintenance organizations will exhibit more task identity than senior NCOs in centralized maintenance organizations.

Hypothesis 4 was not supported by the results of this study. There was not a significant difference in task identity between the two populations.

Hypothesis 5. Senior NCOs in decentralized maintenance organizations will perceive higher task significance than senior NCOs in centralized maintenance organizations.

Hypothesis 5 was not supported by the results of this study. There was not a significant difference in perceived task significance between the two populations.

Hypothesis 6. Senior NCOs in decentralized maintenance organizations will perceive higher levels of job feedback than senior NCOs in centralized maintenance organizations.

Hypothesis 6 was not supported by the results of this study. There was not a significant difference in perceived job feedback between the two populations.

Hypothesis 7. Senior NCOs in decentralized maintenance organizations will perceive higher levels of work support than senior NCOs in centralized maintenance organizations.

Hypothesis 7 was not supported by the results of this study. In fact, there was a significantly higher level of perceived work support in the senior NCOs in centralized maintenance organizations.

Hypothesis 8. Senior NCOs in decentralized maintenance organizations will have better perceptions of management and supervision than senior NCOs in centralized maintenance organizations.

Hypothesis 8 was not supported by the restults of this study. There was not a significant difference in the perceptions of management and supervision between the two populations.

Hypothesis 9. Senior NCOs in decentralized maintenance organizations will perceive higher work group effectiveness than senior NCOs in centralized maintenance organizations.

Hypothesis 9 was not supported by the results of this study. There was not a significant difference in perceived work group effectiveness between the two populations.

Hypothesis 10. Senior NCOs in decentralized maintenance organizations will perceive a better supervisory communications climate than senior NCOs in centralized maintenance organizations.

Hypothesis 10 was not supported by the results of this study. There was not a significant difference in perceived supervisory communications climate between the two populations.

Hypothesis 11. Senior NCOs in decentralized maintenance organizations will perceive a better organizational communications climate than senior NCOs in centralized maintenance organizations.

Hypothesis 11 was not supported by the results of this study. There was not a significant difference in perceived organizational communications climate between the two populations.

Hypothesis 12. Senior NCOs in decentralized maintenance organizations will perceive a better organizational climate than senior NCOs in centralized maintenance organizations.

Hypothesis 12 was not supported by the results of this study. There was not a significant difference in perceived organizational climate between the two populations.

Hypothesis 13. Senior NCOs in decentralized maintenance organizations will exhibit a higher need for enrichment than senior NCOs in centralized maintenance organizations.

Hypothesis 13 was not supported by the results of this study. There was not a significant difference in exhibited need for enrichment between the two populations.

Hypothesis 14. Senior NCOs in decentralized maintenance organizations will have higher job performance goals than senior NCOs in centralized maintenance organizations.

Hypothesis 14 was not supported by the results of this study. There was not a significant difference in job performance goals between the two populations.

Hypothesis 15. Senior NCOs in decentralized maintenance organizations will perceive less work repetition than senior NCOs in centralized maintenance organizations.

Hypothesis 15 was not supported by the results of this study. There was not a significant difference in perceived work repetition between the two populations.

Hypothesis 16. Senior NCOs in decentralized maintenance organizations will perceive more opportunities for advancement and recognition than senior NCOs in centralized maintenance organizations.

Hypothesis 16 was not supported by the results of this study. There was not a significant difference in perceived opportunities for advancement and recognition between the two populations.

Hypothesis 17. Senior NCOs in decentralized maintenance organizations will exhibit more pride than senior NCOs in centralized maintenance organizations.

Hypothesis 17 was not supported by the results of this study. There was not a significant difference in the level of pride between the two populations.

Hypothesis 18. Senior NCOs in decentralized maintenance organizations will perceive more job-related satisfaction than senior NCOs in centralized maintenance organizations.

Hypothesis 18 was not supported by the results of this study. There was not a significant difference in perceived job-related satisfaction between the two populations.

Summary

This chapter presented the results of the statistical analysis performed on the survey responses of two populations of senior NCOs. First, the results of the multi-variate Hotelling's T^2 test were presented, which showed a significant difference between the two populations and also between two subpopulations that were evaluated. Next, the results of Student's t-tests on each factor in the job satisfaction model were presented. These showed that mean values for two of the 17 factors were significantly different between the two populations. A further analysis was then conducted to determine which of the questions that made up these two factors contributed to the significant difference noted. Finally, based on the results of these tests, the 18 research hypotheses that were presented at the beginning of this study were evaluated. Three of the 18 hypotheses were supported by the results of the statistical tests. An analysis of these findings will be presented in the next chapter.

V. Analysis and Recommendations

Overview

The statistical tests performed on the two samples of senior NCOs extracted from the LMDC data base indicated a significant finding for three of the 18 research hypotheses proposed in this study. The test results show that a significant difference in the level of job satisfaction existed between the two samples (Research Hypothesis 1). The follow-on test for the Hotelling's T^2 test showed that only one of the 17 factors in the job satisfaction model significantly contributed to this difference: Factor 805, Work Support. The results also showed a significant difference in the perceived level of task autonomy. Senior NCOs in the decentralized organizations reported the higher values for task autonomy (Research Hypothesis 2). Finally, the test results indicated a significant difference in the perceived level of work support. In this case, the senior NCOs in the centralized organizations reported the higher values (Research Hypothesis 7).

The preceding results are discussed in this chapter. In addition, possible explanations are explored for those results that disputed the research hypotheses. Finally, related issues that are fertile areas for further research are proposed.

Analysis of Findings

The evidence presented by the Hotelling's T^2 test showed conclusive support for the hypothesis that a significant difference in the level of job satisfaction exists between the two populations of senior NCOs. However, the separate Student's t-tests on the 17 factors comprising the job satisfaction model showed significant differences between the two populations existed with only two of the 17 factors. Of these two factors, one showed significantly higher results for the decentralized population, while the other showed significantly higher results for the centralized population. It is important to note here that the size of the sample for the Hotelling's T^2 test was smaller than for the individual Student's t-tests due to the higher likelihood for encountering missing values in a test using 17 factors versus a test using only one. This difference in sample size prevented the use of the individual t-tests to directly and conclusively support the outcome of the Hotelling's T^2 test. However, the follow-on test for the Hotelling's test showed that the work support factor was the only significant contributor to the difference. This result coupled with the results of the Student's t-test appears to indicate that the significant difference between the two populations is being derived from a relatively small number of the 17 factors used in the job satisfaction model.

Of the two factors that showed significant differences between the two populations, the most striking results were those obtained from the Student's t-test on Factor 805, Work Support. Although the two samples' mean value scores for the factor were significantly different, the higher values were obtained from senior NCOs in the centralized organizations. This result is counter to the research hypothesis which proposed that the results would be higher for senior NCOs in the decentralized organizations. The reason for this discrepancy is difficult to understand. Of the three questions that comprise Factor 805, only one exhibited a significant difference between the two populations and, thus, was the one that contributed to the factor showing a significant difference between the two populations. This question, "To what extent is the amount of work space provided adequate?" was responded to much more positively by senior NCOs in the centralized organizations. Personal conversations with maintenance officers from both centralized and decentralized maintenance organizations have offered no insight into the results which might help to explain them. In fact, initiatives within the Tactical Air Command, under the title of Project New Look, have significantly improved the quality of the maintenance working environment. However, Variable 208 requests the survey respondents' perceptions of the size (volume or area related) of the

working environment. Therefore, this research effort cannot offer any explanations for this result. This question is an area that needs further investigation.

The significant results for the Autonomy factor conclusively support the research hypothesis and the literature reviewed that predicted higher perceived levels of task autonomy in members of decentralized organizations. All of the questions that comprise this factor were also significantly in favor of the decentralized organizations. Therefore, senior NCOs in decentralized maintenance organizations perceive a higher level of task autonomy associated with their duty positions.

An interesting finding resulted from the Hotelling's T^2 Test conducted on samples of senior NCOs who scored in the upper half of the respondents to the need for enrichment questions. The research literature reviewed would have suggested that those senior NCOs, with high needs for enrichment, in a decentralized organization would have even higher levels of job satisfaction, and the overall difference in job satisfaction between the two populations would have been amplified. This hypothesis was not supported by the findings of the Hotelling's T^2 Test. The test using the smaller samples of senior NCOs did show a larger significance level, but the difference between the two samples (.028 versus .029) was such that no conclusive support could be made that the senior NCOs

with higher growth needs would be even more satisfied in the decentralized organization.

Overall, the results of the Student's t-tests were not as conclusive as proposed by the research hypotheses. However, as mentioned in an earlier chapter, a number of the research studies that have been conducted on this subject have, likewise, been unable to draw sweeping endorsements of the decentralized organizational structure from their results. In fact, a number of the studies, not unlike this one, were only able to find qualified support that the decentralized structure positively impacted the various variables that make up job satisfaction. There have been some of these same studies, however, that, although they have found <u>significant</u> differences in only a small number of the variables, have noted that the direction of the differences in the other variables were in favor of the <u>decentralized</u> organizational structure. Similarly, in this study, even though only two of the 17 factors in the job satisfaction model showed significant differences, 10 of the 15 remaining factors showed a difference tending in the direction of the decentralized organizations (positive T-value). Although statistically not strong enough to be significant, this particular point is important to note when attempting to make overall conclusions about the findings of this study.

Conclusions

There is statistically significant evidence to support the hypothesis that there is a difference in the level of job satisfaction between senior NCOs in decentralized and centralized aircraft maintenance organizations. However, when the term "job satisfaction" is broken down into individual causal factors and then these factors are evaluated, the evidence is not as strong. The statistical tests that showed a significant difference in the level of job satisfaction between the two organizational structures are being driven by only two of the 17 causal factors in this study's job satisfaction model. Although statistically significant, these results are unable to provide this author with sufficient evidence of the superiority of the decentralized organizational structure in providing job satisfaction for its members.

Recommended Areas for Further Study

This research study was a follow-on to a pilot study by Capt Rick Williams. The combination of these two research efforts has resulted in some perception of the job satisfaction levels of officers and senior NCOs in aircraft maintenance organizations. There is potential for many other studies in this area of investigation. An evaluation of changes, if any, in the level of job satisfaction in senior NCOs who have been transferred from one type of organization to the other would be enlightening.

These individuals would be able to provide a direct comparison of the two organizational structures.

In addition, a study comparing the level of job satisfaction in the remainder of the enlisted force in aircraft maintenance would help to complete that particular aspect of the job satisfaction/organizational structure issue.

Summary

In this chapter, research results and findings were discussed in an attempt to offer explanations for the more significant results of the study. It was concluded that statistical evidence does exist that there is an overall difference in the level of job satisfaction between the two organizational structures. However, the follow-on tests indicate that the evidence is based on strong differences in only two of the 17 job satisfaction determinants. Therefore, sufficient evidence did not exist to support a conclusion that the decentralized maintenance structure is superior to the centralized structure in its ability to increase the level of job satisfaction of its members. Finally, areas of research for further investigation were recommended and discussed.

Appendix: Organizational Assessment Package: Factors and Variables

ORGANIZATIONAL ASSESSMENT PACKAGE

FACTORS AND VARIABLES

LEADERSHIP AND MANAGEMENT DEVELOPMENT CENTER

AIR UNIVERSITY
MAXWELL AFB, ALABAMA

Section 2

OAP DEMOGRAPHIC ITEMS

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

Section 2 (Continued)

OAP DEMOGRAPHIC ITEMS

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

Section 3

WORK ITSELF

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

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

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

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

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

Section 3 (Continued)

WORK ITSELF

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

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

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

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

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

FACTOR - JOB INFLUENCES (NOT A STATISTICAL FACTOR):

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

Section 4

JOB ENRICHMENT

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

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

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

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

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

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

FACTOR 804 - JOB FEEDBACK: Measures the degree to which carrying out the wo 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 wel 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, anc to be responsible for your own work?

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

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

Section 4 (Continued)

JOB ENRICHMENT

FACTOR 807 - JOB MOTIVATION INDEX: A composite index derived from the six job characteristics that reflects the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job encumbents.

800	Skill Variety
801	Task Identity
802	Task Significance
804	Job Feedback
805	Work Support
813	Task Autonomy

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

FACTOR 808 - OJI TOTAL SCORE: Assesses one's perception of motivation provided by his or her job. This factor is a variation of theory employed by other job motivation factors. Score is computed using the variables in the following formula:

(V201+V202+V203+V270+V271+V272
+8-V206+V207+V208+V209+V210
+V211+V212+V213)

FACTOR 809 - JOB MOTIVATION INDEX - ADDITIVE: This factor is a variation of theory employed by other job motivation factors. Index is computed using the following factors:

800	Skill Variety
801	Task Identity
802	Task Significance
804	Work Repetition
805	Work Support
813	Task Autonomy

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

FACTOR 825 - MOTIVATION POTENTIAL SCORE: This factor is another variation of theory employed by other job motivation factors. It ranges between 0 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+801+802)/3)(813)(804)

Section 5

WORK GROUP PROCESS

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

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

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

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

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

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

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

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

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

Section 5 (Continued)

WORK GROUP PROCESS

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

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

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

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

Section 6

WORK GROUP OUTPUT

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

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

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

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

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

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

Section 6 (Continued)

WORK GROUP OUTPUT

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

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

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

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

Section 7

OAP VARIABLES

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

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

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
234	817	41	To what extent are you aware of promotion/advancement opportunities that affect you?
235	-	-	(Not Used)
236	-	-	(Not Used)
237	-	-	(Not Used)
238	(Note)	42	To what extent do co-workers in your work group maintain high standards of performance?
239	817	43	To what extent do you have the opportunity to progress up your career ladder?
240	817	44	To what extent are you being prepared to accept increased responsibility?
241	817	45	To what extent do people who perform well receive recognition?
242	-	-	(Not Used)
243	-	-	(Not Used)
244	-	-	(Not Used)
245	-	-	(Not Used)
246	-	-	(Not Used)
247	-	-	(Not Used)
248	-	-	(Not Used)

(In my job, I would like to have the characteristics described--from "not at all" to "an extremely large amount")

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
249	806	51	Opportunities to have independence in my work?
250	806	52	A job that is meaningful
251	806	53	The opportunity for personal growth in my job
252	806	54	Opportunities in my work to use my skills
253	806	55	Opportunities to perform a variety of tasks
254	-	-	(Not Used)
255	816	56	A job in which tasks are repetitive.
256	-	-	(Not Used)
257	-	-	(Not Used)
258	816	57	A job in which tasks are relatively easy to accomplish.
259	821	77	The quantity of output of your work group is very high
260	821	78	The quality of output of your work group is very high
261	821	79	When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations
262	-	-	(Not Used)
263	-	-	(Not Used)
264	821	80	Your work group always gets maximum output from available resources (e.g., personnel and material)
265	821	81	Your work group's performance in comparison to similar work groups is very high
266	-	-	(Not Used)
267	-	-	(Not Used)

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

Section 7 (Continued)

OAP VARIABLES

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

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

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

Section 7 (Continued)

OAP VARIABLES

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

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

Section 7 (Continued)

OAP VARIABLES

VARIABLE NUMBER	FACTOR	STATEMENT NUMBER	STATEMENT
433	819	70	My supervisor lets me know when I am doing a good job.
434	(Note)	71	My supervisor lets me know when I am doing a poor job.
435	819	72	My supervisor always helps me improve my performance.
436	819	73	My supervisor insures that I get job related training when needed.
437	819	74	My job performance has improved due to feedback received from my supervisor.
438	-	-	(Not Used)
439	(Note)	75	When I need technical advice, I usually go to my supervisor.
440	-	-	(Not Used)
441	-	-	(Not Used)
442	819	76	My supervisor frequently gives me feedback on how well I am doing my job.
443	-	-	(Not Used)
444	-	-	(Not Used)
445	818	64	My supervisor fully explains procedures to each group member.
446 thru 699	-	-	(Not Used)
700	-	-	(Not Used)
701	-	-	(Not Used)
702	-	-	(Not Used)
703	-	-	(Not Used)
704	-	-	(Not Used)
705	822	101	Feeling of Helpfulness The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.
706	-	-	(Not Used)
707	-	-	(Not Used)
708	-	-	(Not Used)
709	822	102	Co-worker Relationships My amount of effort compared to the effort of my co-workers, the extent which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
710	822	103	Family Attitude Toward Job The recognition and the pride my family has in the work I do.
711	823	104	On-the-Job Training (OJT) The OJT instructional methods and instructors' competence.
712	823	105	Technical Training (Other than OJT) The technical training I have received to perform my current job.
713	-	-	(Not Used)
714	-	-	(Not Used)
715	-	-	(Not Used)
716	-	-	(Not Used)
717	822	106	Work Schedule My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
718	822	107	Job Security
719	822	108	Acquired Valuable Skills The chance to acquire valuable skill in my job which prepare me for future opportunities.
720	-	-	(Not Used)
721	-	-	(Not Used)
722	-	-	(Not Used)
723	822	109	My Job as a Whole
724 thru 999	-	-	(Not Used)

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

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Thesis Chairman: Paul A. Reid, Lieutenant Colonel, USAF
Instructor, Logistics Management

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This study was conducted to investigate differences in the levels of job satisfaction between Air Force senior NCOs assigned to decentralized aircraft maintenance organizations and senior NCOs assigned to centralized aircraft maintenance organizations. The study analyzed a subset of data from a data base maintained by the Leadership and Management Development Center which contains responses to the Organizational Assessment Package (OAP) survey administered to Air Force personnel worldwide. The data consisted of demographic data and responses to attitudinal questions grouped into twenty-four statistical factors. A literature review established seventeen of the factors to be causal variables for job satisfaction. In addition, the literature reviewed indicated that individuals in decentralized organizations would experience higher levels of job satisfaction than individuals in centralized organizations.

The multi-variate Hotelling's T^2 test was used to test the hypothesis that there was a difference in the level of job satisfaction between the two populations. This hypothesis was supported by the results of the statistical test. The Student's t-test was used to test seventeen hypotheses that proposed higher values for each of the seventeen factors for individuals in the decentralized aircraft maintenance organizations. Only two of the seventeen hypotheses were supported by the results of the test. Mean values for Task Autonomy were significantly higher for individuals in the decentralized organizations, while mean values for Work Support were significantly higher for individuals in the centralized organizations. The research was concluded with recommended areas for further study.