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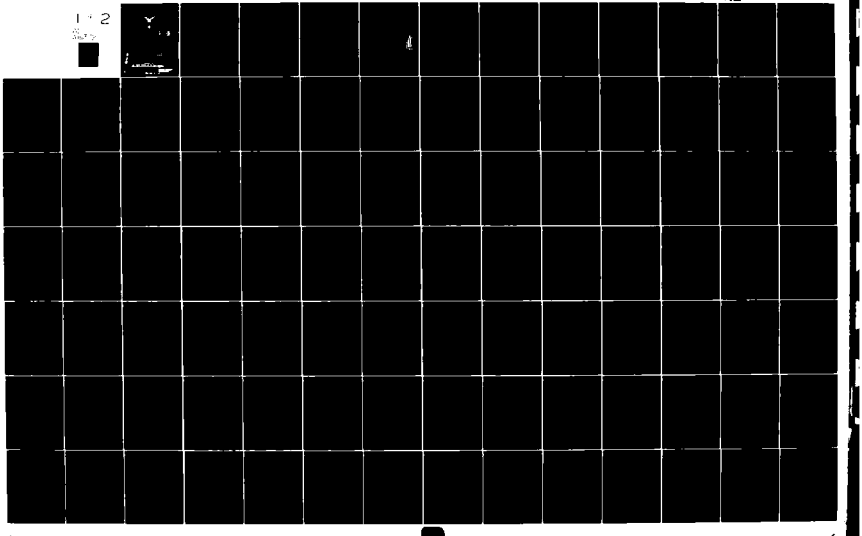

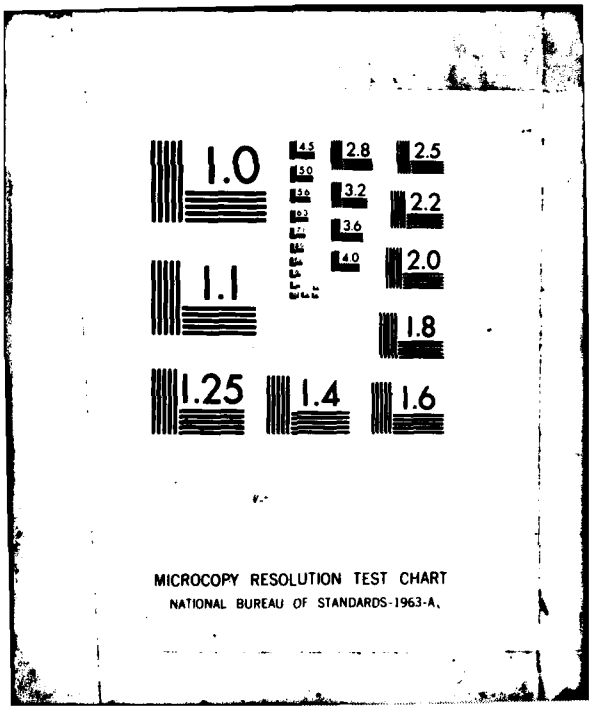
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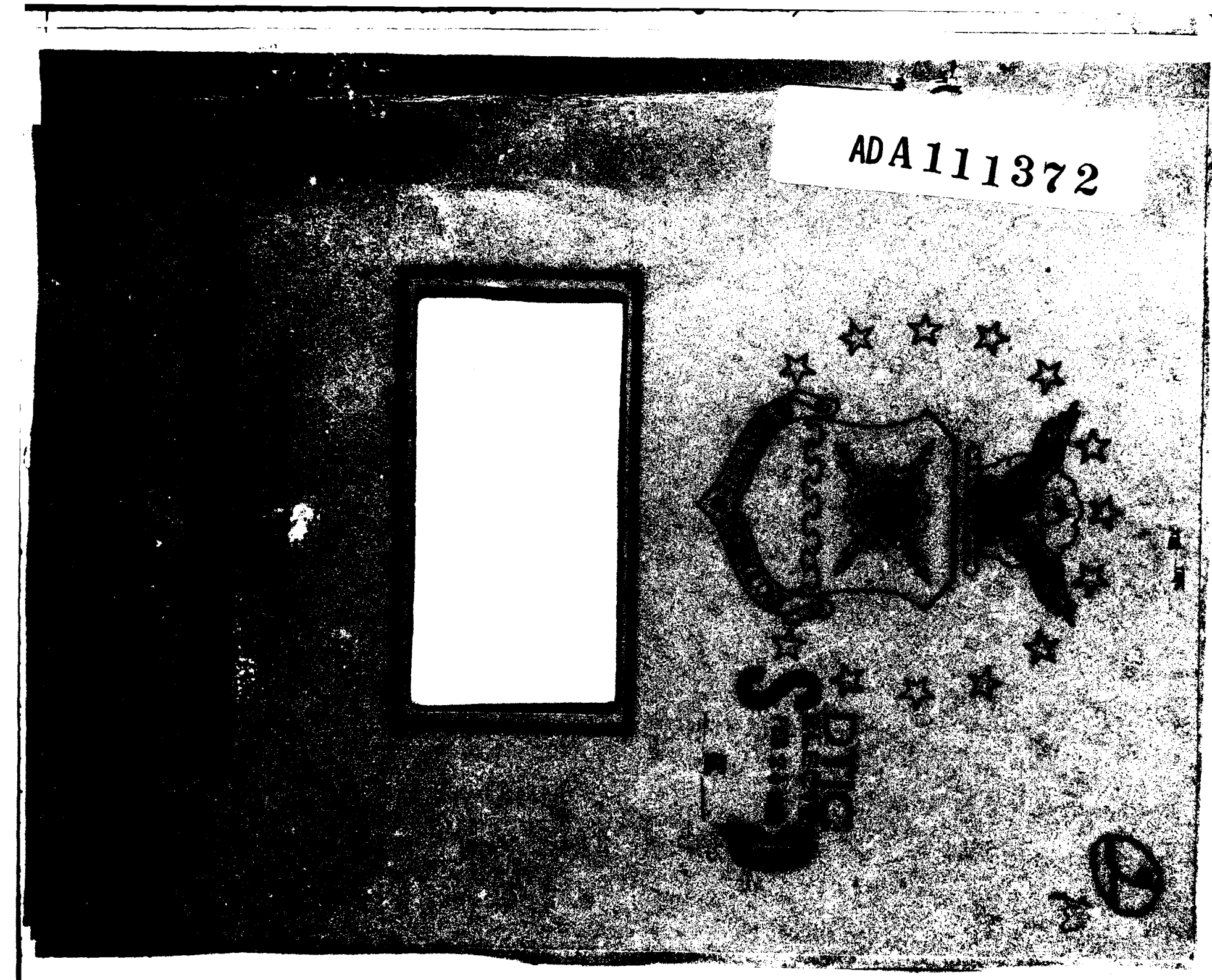

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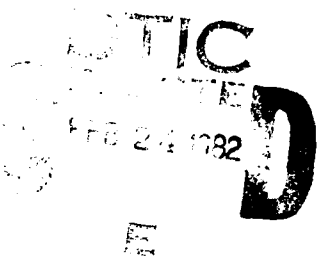

A DESCRIPTIVE ANALYSIS OF SELECTED AFFECTIVE MEASURES IN THE MAINTENANCE CAREER FIELD

Joe T. Horne, Captain, USAF

LSSR 101-81

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This study analyzed a subset of data from the Leadership and Management Development Center (LMDC) data base containing responses to the Organizational Assessment Package (OAP) survey administered to personnel in the maintenance career field. The data consists of demographic data and responses to attitudinal questions organized into twenty-one statistical factors. A literature review related organizational behavior theory on goals, job characteristics, job satisfaction, organizational climate, and role ambiguity to factors measured by the OAP. Graphic techniques and a form of the two sample t-test were used to identify significant variations of the factors over time. Twenty of the most significant variations were formulated into research questions which were presented to the Air Staff level functional area managers of each Air Force Specialty Code (AFSC) for which survey data was generated. A structured discussion focused on providing plausible rationale as to why statistically significant increases/declinations occurred in factors for particular AFSCs during specific time frames. Highlights of the meeting were summarized and the research was concluded with conclusions and recommended areas for further research.

LSSR 101-81

A DESCRIPTIVE ANALYSIS OF SELECTED AFFECTIVE MEASURES IN THE MAINTENANCE CAREER FIELD

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering Management

By

Joe T. Horne, BS
Captain, USAF

December 1981

This thesis, written by

Captain Joe T. Horne

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

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT

DATE: 18 December 1981

Russell F. Lloyd, MAJ USAF
COMMITTEE CHAIRMAN

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Upon completion of this work, I would like to acknowledge the fact that it is an answer to the prayers of me, my spiritual and academic advisor Major Lloyd, and a number of friends who have supported me. As an answer to prayer I give all credit to the Lord for the completion. Through this effort I have been guided by Proverbs 16:3--"Commit thy works unto the Lord and thy thoughts shall be established."

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CHAPTER I

INTRODUCTION

LMDC Mission

The mission of the Air Force Leadership and Management Development Center (LMDC), Maxwell AFB, Alabama includes:

> (a) providing management consultation services to Air Force commanders, (b) providing leadership and management training to Air Force personnel in their work environment, and (c) performing research in support of (a) and (b). The consultative role involves organizational problem area identification and recommendations for resolving problems identified [2:71].

OAP Development

> The Organizational Assessment Package (OAP) [Appendix A] was developed for use by the LMDC. The OAP was designed to support the mission objectives of the LMDC. First, the OAP provides a means of identifying existing strengths and weaknesses within organizational work groups and aggregated work groups, such as directorates. Second, research results can be fed back into Professional Military Education curricula; other leadership and management training courses; and when action is required, to Air Staff and functional offices of primary responsibility. Third, the OAP data base established can be used for research to strengthen the overall Air Force organizational effectiveness program [2:1].

Research Objectives

Occasionally, LMDC findings call for a rigorous investigation requiring an investment of time beyond what their mission permits. In such instances, LMDC often

provides these data to AFIT to conduct research either as faculty research or as student thesis research. Such were the circumstances which led to this research effort.

This research was based on an analysis of a subset of data from the OAP data base. The data came from nine maintenance Air Force Specialty Code (AFSC) functional areas and a tenth sample consisting of other enlisted in the Air Force.

The research objectives followed closely the design of the OAP in support of LMDC objectives as stated above:

1. The analysis looked for strengths and weaknesses in the organizational management of the maintenance career field, and more specifically the different AFSC functional areas, by identifying statistically significant variations in the OAP data.

2. As the research progressed, the Air Staff was consulted and expressed an interest in having the research directed toward providing information on a problem which had developed with retention of enlisted personnel in the maintenance career field.

3. The third research objective was to develop a set of research questions to be presented to the Air Staff and managers of the different AFSC functional areas involved to generate some discussion addressing the issues of the first two objectives.

The second phase of the analysis was a discussion meeting with the Air Staff and AFSC functional area managers to address the research objectives and answer the research questions.

Organizational Theory

The qualitative analysis of the impact of OAP factor variations was based upon a literature review of the following areas of organizational theory which correspond to organizational qualities measured by the OAP.

1. Job Characteristics
2. Job Satisfaction
3. Organizational Climate
4. Organizational Goal Setting
5. Role Ambiguity

The final analysis applied theories of organizational behavior to explain statistically significant variations in terms of important events or occurrences in the functional areas.

Scope

The scope of this study was limited to identification and analysis of some of the more obvious variations in the OAP factor data with respect to the research objectives. No attempt was made to find every statistically significant factor variation.

CHAPTER II

LITERATURE REVIEW

Introduction

This chapter contains a literature review of some of the research concerned with five areas of organizational theory measured by the OAP.

Job Characteristics

In Work Redesign (8), Hackman and Oldham pose the question: "How can work be structured so that it is performed effectively and, at the same time, jobholders find the work personally rewarding and satisfying [8:71]?"

In a situation such as this, where good performance is a self reward, and poor performance generates bad feelings, the worker is said to possess "high internal motivation." Work is performed effectively and is rewarding and satisfying in and of itself.

Hackman and Oldham have identified three "critical psychological states" which must exist for strong internal work motivation to develop and persist: (1) The person must "experience the work as meaningful." It must be important with respect to his own value system before it will generate internal motivation; (2) The person must "experience responsibility" for the outcomes of the work. The worker

must believe that he or she is personally responsible for the results, and feel proud when the work is good and sad when it isn't; (3) Finally, the worker must have "knowledge of the results" of his or her work. If the person does not know how well or poorly he or she is performing, then feeling good or feeling poorly about the job loses its relevance (8:72,73).

Hackman and Oldham have identified five job characteristics which are measurable, changeable properties of work. These are believed to foster the three psychological states necessary for internal motivation. Three of the characteristics, "skill variety, task identity, and task significance," shape the meaningfulness of the work. A fourth characteristic, autonomy, is directly related to the experienced responsibility for work outcomes. The fifth characteristic, feedback from the job, provides knowledge of the actual results of the work (8:77).

Hackman and Oldham define these characteristics and explain how they contribute to each of the psychological states.

Skill Variety

> Skill variety is the degree to which the job requires a variety of activities in carrying out the work, involving the use of a number of skills and talents of the person [8:78].

When activities require a variety of skills or abilities, the task is more likely to be experienced as

meaningful. According to Hackman and Oldham, a task which challenges the performer may be experienced as meaningful even if it is not significant or important in a broader sense.

Task Identity

> Task identity is the degree to which a job requires completion of a "whole" and identifiable piece of work, that is, doing a job from beginning to end with a visible outcome [8:78].

It is more meaningful for workers to complete an entire unit of work rather than merely a component of the whole.

Task Significance

> Task significance is the degree to which the job has a substantial impact on the lives of other people, whether these people are in the immediate organization or in the world at large [8:79].

A task becomes more meaningful if the worker perceives that it has direct bearing on the physical or psychological well-being of other people.

Each of the three job characteristics described above contributes to the experienced meaningfulness of the work. According to Hackman and Oldham the presence of all three is not necessary for a person to experience meaningfulness. If only one of the characteristics is present to a significant degree, the worker will feel that the work is meaningful, even though the other two characteristics are at low levels (8:79).

Autonomy

> Autonomy is the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out [8:79].

As autonomy increases, individuals view the outcome as depending more on their own efforts and feel more personal responsibility for the outcomes of the work activities.

Knowledge of results is directly affected by "feedback."

Job Feedback

> Job feedback is the degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance [8:80].

In this context, Hackman and Oldham are referring to feedback directly from the job. This means that knowledge of results derives directly from job features, such as an appliance that works after it has been repaired, rather than from an indirect source of feedback, such as supervisory communications.

The Motivating Potential of a Job

Hackman and Oldham have taken into consideration the contributions and interaction of each of the five job characteristics to design a model which may be used to determine the overall motivating potential of a job with

respect to the internal motivation of individuals performing that task.

The model takes into account the fact that the presence of only one of the three meaningfulness characteristics is sufficient to create the conditions necessary for a meaningful job environment; but both autonomy and job feedback must be present to prompt the other two critical psychological states required for strong internal motivation.

Hackman and Oldham combine the five job characteristics mathematically to derive a motivating potential score (MPS) (8:81).

$$\text{MOTIVATING POTENTIAL SCORE (MPS)} = \left[\frac{\text{SKILL VARIETY} + \text{TASK IDENTITY} + \text{TASK SIGNIFICANCE}}{3}\right] \times \text{AUTONOMY} \times \text{JOB FEEDBACK}$$

The interdependence of skill variety, task identity, and task significance is taken into account by their multiplicative effect in the model.

Hackman and Oldham have designed a Job Diagnostic Survey (JDS) (8:103) as a data collection instrument to evaluate the job characteristics and critical psychological states in an organization in order to determine the MPS.

The instrument employs values from 1 to 7 for each job characteristic rating making it possible for the MPS score to range from a low of 1 to high of 343. Normative

data have ranged between a low of 7 and a high of 300 (8:82).

Differences Among People

The usefulness of the model is moderated by the personal characteristics of the people under study. Hackman and Oldham have identified three "moderators" which influence the motivational impact of any job.

Knowledge and Skill. The effects of knowledge and skill and the motivating potential of a job are interdependent upon one another. If the job has a low MPS internal motivation will be low and not directly affected by worker effort. If the job has a high MPS and the worker is highly skilled and knowledgeable then the internal work motivation will be high, and satisfaction will be experienced from doing the job well.

However, if the job has high motivating potential, and the worker is low in skill and knowledge, the job will be done poorly stimulating job dissatisfaction (8:84).

Growth Need Strength. The extent to which a job high in motivating potential will stimulate high performance by an individual is moderated by the "psychological needs" of that person. Hackman and Oldham have labeled these needs for personal accomplishment, learning, and higher development as "growth needs" (8:85). Individuals

with high growth need strength will benefit from performing on a complex, difficult job.

Individuals with low growth need strength may fail to recognize challenging opportunities, or they may feel threatened by such a challenge.

Satisfaction with the Work Context. The third factor which moderates the effect of worker performance is satisfaction with the work context. Hackman and Oldham determined that satisfaction with work context affects the response of a worker to an enriched job in a predictable manner. A person who is relatively satisfied with pay, job security, fellow workers, and management will have a more positive response to an enriched job than an individual who is dissatisfied with these or other factors in the work environment.

Persons with low personal needs for growth who are dissatisfied with the work context were found to respond less favorably to a high MPS job.

An unanticipated finding by Hackman and Oldham stemmed from the response of low growth need strength workers who expressed dissatisfaction with the job context. They responded negatively to a high MPS job but somewhat positively to a low MPS job. This was interpreted as indicating that a low MPS job would leave the worker more time to deal with his problems within the work context.

The strongest positive relationships between MPS and job outcomes were found when workers had high growth needs and were satisfied with the work context (8:87).

Assessment of the Job Characteristics Model

Hackman and Oldham, in assessing the job characteristics model, acknowledge that it has shortcomings. They express concern in five areas.

1. Evidence for proposed moderating effects is scattered and has not been systematically tested in all areas.

2. The links between job characteristics are not as clear as suggested.

3. The job characteristics are not really independent. The multiplicative formula for MPS is compromised by intercorrelations.

4. The concept of feedback used in the model is not completely clear. It is difficult to define and isolate "job-based" feedback. The model does not address feedback from non-job based sources.

5. It is not completely clear how the objective properties of jobs relate to people's perceptions of those properties (8:95-97).

Although the model does contain the shortcomings listed, if these are taken into consideration, it may be

useful for effective diagnosis of problems and planning in organizational work settings.

Job Satisfaction

Job satisfaction is a wide open area of study in the field of organizational behavior. The literature is replete with research on the theories of job satisfaction. Locke (14), in reviewing the literature, found references to 3,350 articles or dissertations on the subject (14:1297). He identified a set of job dimensions which were classified as either "events or conditions," or "agents." This classification combines two levels of analysis in that there is a cause for every event or condition, and that cause is the agent in one form or another. In the analysis the interaction between events and agents becomes the primary consideration. Some of the elements described as events or conditions include such job dimensions as work, pay, promotion, verbal recognition, and working conditions. The worker himself and his supervisor and subordinates are examples of agents (14:1302).

This framework of job dimensions was used by Locke to build his early model of job satisfaction which has been analyzed, criticized, and modified into the body of job satisfaction theory which exists in the literature today.

In this review a description of Locke's theory is followed by a summary of some of the other popular theories of job satisfaction, and two studies on job satisfaction in the military environment.

Causal Factors in Job Satisfaction

Locke analyzed the literature on the causal factors of job satisfaction by dividing it according to events and conditions and agents, as listed above.

Events and Conditions.

1. Work. Locke found that there are certain attributes that are related to work interest and job satisfaction. These include:

> . . . opportunity to use one's valued skills and abilities; opportunity for new learning; creativity; variety; difficulty; amount of work; responsibility; non-arbitrary pressure for performance; control over work methods and work pace (autonomy); job enrichment (which involves increasing responsibility and control); and complexity [14:1319].

He further determined that each of these attributes has the common element of mental challenge which creates interest and involvement thus leading to job satisfaction. Locke cautioned, however, that excessive challenge leads to discouragement and dissatisfaction. Achievement of a task or success in problem solving is an important determinant of satisfaction. Two preconditions of work satisfaction are that the worker finds the task interesting and meaningful, and free of physical strain.

Locke points also to some exceptions to the model as presented. Research in two of the studies "shows quite clearly that all employees do not consciously value, desire, or seek mentally challenging work [14:1321]." Workers in lower job levels view work as a means to keep busy and earn a living while higher job level workers find work pleasurable in itself and a means of fulfilling psychological needs (14:1321).

2. Pay. The root desire for pay is to satisfy physical needs such as food, shelter and clothing, but it also is valued as a source of recognition and a means of obtaining other values. Pay satisfaction is based on a feeling that the pay is just, informative, and in line with the individual's personal aspirations (14:1322,1323).

3. Promotion. According to Locke the desire for promotion is rooted in desires for psychological growth, justice, more pay, and social status. Satisfaction is a function of two factors: (1) the frequency of promotion in relation to what is desired, and (2) the importance of the promotion to the individual (8:1323).

4. Verbal Recognition. Locke found verbal recognition to be one of the most frequently mentioned events causing job satisfaction and dissatisfaction. Employees value praise and devalue criticism or not getting credit for work accomplishments. Recognition for work also serves

the function of providing the employee with feedback on the quality of his job performance (8:1324).

5. Working Conditions. Satisfactory working conditions are those in which the physical surroundings are not uncomfortable or dangerous, and where moderate degrees of temperature, humidity, ventilation, lighting, and noise are maintained. Other satisfactory working conditions include a location near home and a clean working area adequately equipped with the required tools.

Locke feels that working conditions, unless they are extremely good or bad, are generally taken for granted by most employees. They become salient when some standard for comparison is available, such as a change over time (14:1324).

Agents.

1. Self. The first agent which Locke mentions as affecting job satisfaction is self. Little research was formed on the way an individual's view of himself affects his job satisfaction. Locke proposes that an individual's self-esteem is a crucial factor, and that an individual with high self-esteem will have a greater chance of experiencing job satisfaction with a wider range of work situations (14:1325).

2. Supervisors and Subordinates. Locke found, consistently, that subordinates are more inclined to like

supervisors who are "considerate," as defined by Ohio State University to include such traits or actions as friendliness, praise of good performance, listening to subordinates' opinions, and taking a personal interest in them (14:1325).

To amplify the understanding of the interactions between supervisors, co-workers, and subordinates, Locke reported related research on two types of human relationships which he labels "Functional" and "Entity" relations. In a functional relationship, the bond between two or more people consists of the services which they can provide for each other. In an entity relationship, the bond is a personal one between the two individuals. Each type of bond can exist without the other and it is possible for one to develop into the other. The greatest overall liking and strongest bond develops when both types of relationships exist together. Knowing the relationship-orientation between personnel can enable better matching of employees and supervisors. When both relationships coexist in an organizational context, job satisfaction is certain to be enhanced.

The relationship between the worker and the company and management exists at the functional level. The organization determines: the nature of the individual's work tasks, his work load, degree of responsibility, promotional opportunities, rate of pay, and the physical conditions of

his work. These all have a direct bearing on the worker's job satisfaction (14:1327,1328).

Need Fulfillment Theory

Fulfillment Theory had its beginnings with Maslow's Theory of Needs which proposed that behavior is dominated by a set of unsatisfied needs arranged in a hierarchy. Modifications of the need hierarchy have led to the present Fulfillment Theory which Chung summarizes as follows: Job satisfaction is determined by the amount of rewards a person feels he is receiving from his work environment. If the job situation is need-fulfilling, the job will be more satisfying than in a less fulfilling job situation. "The sum of gratification of various needs or satisfaction with various job facets constitutes the amount of total job satisfaction [5:114]."

Satisfiers and Dissatisfiers

Satisfiers and dissatisfiers are based on the Two-Factor Theory proposed originally by Herzberg (14:1310). The Two-Factor Theory states that in the work environment, job satisfaction and job dissatisfaction are caused by two different sets of factors which are called satisfiers (Motivators) and dissatisfiers (Hygienes) respectively. Motivators include such factors as the work itself, achievement, promotion, recognition, and responsibility. The

presence of motivators on a job promotes job satisfaction, but their absence does not create dissatisfaction.

Hygienes (or dissatisfiers) include work supervision, interpersonal relations, working conditions, company policy and procedures, and salary. The presence of undesirable states of these hygiene factors causes job dissatisfaction, but the presence of desirable states does not create satisfaction with the job (14:1310).

Locke (14) and Chung (5) both express disagreement with the Two Factor Theory. Locke found that the existence of two unipolar continua is indefensible both empirically and logically, and unnecessary in emphasizing the importance of work in facilitating psychological growth (14:1318). Chung found that factors are relative to the job situation and a satisfier in one job situation may become a dissatisfier in another.

> These research findings generally agree that the same job factors can contribute to both job satisfaction and job dissatisfaction, and both satisfiers and dissatisfiers must be present in the work environment to enhance job satisfaction and performance [5:1].

When a person is motivated by sheer existence, a dissatisfier such as pay can become a satisfier.

Valence-Satisfaction Theory

In this model, satisfaction is seen as something in the future rather than an outcome of the past. Satisfaction is defined as ". . . the valence of outcomes or an anticipation of need satisfaction. . . . Job satisfaction

is measured by the total amount of outcome valences available to an employee [5:114]."

The Valence Theory of job satisfaction agrees with both the Fulfillment and the Two Factor theories in that unsatisfied needs stimulate behavior and satisfied needs do not. Satisfied needs activate unsatisfied needs thus creating another valence relationship and anticipated need satisfaction.

Discrepancy Theory

Discrepancy Theory states that an individual's satisfaction is determined by the discrepancy between what his environment offers or what he attains, and that which he expects or has adapted to (14:1303). Chung summarizes by stating that, "job satisfaction is determined by the difference between the actual reward level and the expected reward level [5:116]."

To determine job satisfaction using the Discrepancy Theory, one must know not only the actual reward received but also the amount a person expected to receive.

In Discrepancy Theory the primary function of expectancy is to influence the timing and/or the intensity of the evaluation process; evaluation, that is, as it pertains to the perceived discrepancy between the expected and the actual reward. Expectancy affects the operation of value judgements which, in turn, affect job satisfaction (14:1303).

Equity-Inequity Theory

The Equity-Inequity Theory is similar to the Discrepancy Theory in that satisfaction is determined by a person's perception of his input (effort) to output (reward) ratio. If the ratio is perceived as equitable the individual is satisfied. Dissatisfaction results when an individual perceives an inequity (5:117).

Studies have been made relating job satisfaction to the military environment. The following section summarizes two such studies.

Military Implications

Leader Attributes. Bleda, Gitter, and D'Agostino (3) conducted a study testing the association between enlisted men's satisfaction with Army life and their perceptions of types of leaders. They dichotomized the leaders as either originators, who initiated the daily duties, or givers, who merely passed on the orders to perform the duties. "It was predicted that the association between satisfaction and the originator behavior would be relatively greater than the corresponding relation for the giver [3:44]."

Their rationale was that the subordinate would view the originator as having more influence than the givers, and thus being more directly responsible for their content.

Results showed highly significant positive correlations between satisfaction and perceived behavior of both types of leaders. However, the correlations between satisfaction and the giver's behavior were less statistically significant ($p<.05$) than they were for the originator ($p<.01$).

The relative magnitude of the association between satisfaction and perceived leader ability of the originator was significantly greater than the same association for the giver (3:47).

Morale. A study by Montwidlo and Borman (18) examined the correlation between morale and satisfaction in forty-seven platoons in the United States Army stationed in Europe. Morale was measured by the use of behaviorally anchored scales, and satisfaction was rated using a questionnaire combining several instruments for measuring satisfaction. Correlations between overall satisfaction were significant with a value of $p<.01$ (18:50).

Summary and Conclusions

This review has covered some of the prominent theories of job satisfaction, including a description of some causal factors. As stated in opening, the field is replete with theories and models. In the study of a particular organization, care must be taken to apply a theory or model which fits the situation. If the proper model

is found, its application can prove to be useful in explaining, and possibly predicting or modifying behavior in the organization.

Organizational Climate

Woodman and King (22) summarized the status of the concept of organizational climate and its study.

> As evidenced by the large amount of writing and research in the area, considerable (although not unanimous) agreement exists that organizational climate is a meaningful concept--one which has important implications for understanding human behavior in organizations [22:816].

Since its introduction in the organizational literature, Organizational Climate Theory has been the object of controversy and discussion. It has been defined and redefined but Woodman and King, after reviewing the literature, provide a narrative which includes many of the important points made by other authors.

> Organizational climate is usually considered to be a molar concept in the same sense that personality is a molar concept. The climate of a particular organization, while certainly not unchanging, nevertheless has an air of permanence, or at least some continuity over time. Phenomonologically, climate is external to the individual, yet cognitively climate is internal to the extent that it is affected by individual perceptions. Climate is reality-based and thus is capable of being shared in the sense that observers or participants may agree on the climate of an organization or group, although this consensus may be constrained by individual differences in perceptions [22:818].

The evolution of this definition from earlier definitions will be seen in the summary of theory which follows. The summary includes descriptions of the three common approaches

to the study of organizational climate, a new and different approach, a discussion of the problems with these approaches, and a summary with conclusions.

Summary of Theory

James and Jones (10) reviewed the organizational climate literature in 1974 and provided a description of the three approaches to the study of organizational climate being used at that time: (1) multiple measurement-organizational attribute approach, (2) perceptual measurement-organizational attribute approach, and (3) perceptual measurement-individual attribute approach (10:1096).

Multiple Measurement-Organizational Attribute Approach. The multiple measurement-organizational attribute approach assumes that

> . . . an internally consistent and homogenous set of measurements for organizational climate exists for at least organizational subunits and that these measurements are relatively permanent over time [10:1097].

In their review of the literature James and Jones concluded that the multiple measurement-organizational attribute approach was not specific enough because its limits were determined only by the definition of organizational climate as a

> . . . set of characteristics that describe an organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over

time, and (c) influence the behavior of people in the organization [6:362].

James and Jones claimed that using this definition "almost any study focusing on organizational or group characteristics would be included in the area of organizational climate [10:1099]."

Perceptual Measurements-Organizational Attributes Approach. James and Jones found that this approach was based upon defining organizational climate as follows:

> . . . a set of attributes specific to a particular organization that may be induced from the way the organization deals with its members and its environment. For the individual member within an organization climate takes the form of a set of attitudes and expectancies which describe the organization [4:390].

In this approach the analysis is based upon the perceptions of the members of the organization and the persons studying the organization. James and Jones also found some problems with this approach. They questioned the accuracy of the perceptions and the fact that there is no reliable way to measure this accuracy. They found no indications of the effect of consensus or lack of consensus on the organization. James and Jones found support for dropping purely perceptual measurement of organizational climate in favor of a broader-based measurement employing other sources. They also pointed to what may be a logical inconsistency in that climate is measured by objective and subjective measures:

> Thus it appears inconsistent to require the same set of organizational climate data to be accurate measures of organizational stimuli and simultaneously to be representative of the response-oriented psychological process level of explanation [10:1105].

Perceptual Measurement-Individual Attribute Approach. In this third approach organizational climate is seen as an individual attribute.

> The concept of climate in the present research must be described as personalistic; climate is an individual perception. There is no attempt to restrict the climate definition to perceptions shared by the members of a work group or organization . . . what is psychologically important to the individual must be how he perceives his work environment, not how others might choose to describe it [10:1105].

In this approach organizational climate is seen as an intervening variable because it is caused by discrete experiences of both the organization and the individual which in turn cause later behaviors (10:1105).

In their study of the literature James and Jones found that ". . . many organizational climate dimensions measure the same constructs as well-known role and leadership factors [10:1107]," such as autonomy, structure, and consideration. This bring up the question of the value of a "new" variable which is not really measuring anything new.

James and Jones also questioned the accuracy of individual perceptions versus objective measures of the same dimensions. The perception of the individual is the correct variable, by definition, but if this perception

differs greatly from reality then there is something missing from this approach (10:1108).

Summary of the Three Approaches. In their review, James and Jones recommended the differentiation between the study of climate as the study of an organizational attribute which would include the first two approaches, and climate as a psychological attribute which would be the perceptual measurement-individual attribute approach. They recommended dropping the stipulation of only perceptual measurement on any of the approaches, and adding clarity in the definition and measurement of climate by also employing objective measures.

A Later Assessment. Woodman and King (22) in a 1978 assessment of organizational climate literature discussed the relationship between organizational climate and performance, the necessary distinction between objective and perceptual measures, and the relationship between job satisfaction and organizational climate.

Concerning the relationship between organizational climate and performance Woodman and King examined reports which

> . . . reviewed a variety of studies which have examined the relationships between climate and performance and concluded that no consistent relationship has been demonstrated [22:818].

Woodman and King also reviewed the literature in an effort to answer two research questions.

1. Are perceptual and objective measures of organizational climate measuring the same construct?
2. Are perceptual measures of climate measuring attributes of people or attributes of organizations [22:819]?

Their conclusion is stated:

> The literature reviewed here should convince the reader that two issues remain unresolved: (a) the lack of convergent validity between perceptual and more objective measurement of organizational climate, and (b) the question of what attributes are actually being assessed by perceptual measures [22:820].

Woodman and King concluded that the literature is not in agreement and more study is required.

The research reviewed by Woodman and King concerning the relationship between organizational climate and job satisfaction was also inconclusive. They found contradictory research results which were open to considerable subjective interpretation (22:822).

In a related study of organizations, Meglino (17) determined that an evaluative climate had a positive effect on the performance of well-learned tasks while retarding performance on unfamiliar or poorly learned tasks (17:64).

Summary and Conclusions

As the literature indicates, organizational climate is a meaningful concept, but more research is necessary to determine its place in organizational theory and its overall effect on organizational behavior and performance.

Organizational Goal Setting

Goal setting theory, based on the work by Locke (15) focuses on the relationship between conscious goals or intentions and task performance. Locke defines a goal as that which an individual is consciously trying to do (13:824).

Locke's theory states that hard goals evoke a higher level of effort and performance than do easy goals, and specific goals promote a higher level of effort and performance than do generalized or no goals. The goals modify behavior only to the extent that they are consciously accepted by an individual. The theory further states that a person's goals mediate how performance is affected by monetary incentives, time limits, performance feedback, participation in decision making and competition (13:824).

Studies were conducted by Latham and Yukl (13) and by Latham, Mitchell and Dossett (12) to investigate some of these effects.

Goal Difficulty

Latham and Yukl (13) reviewed seven studies which tested the effect of goal difficulty on performance. All seven studies indicated that performance increased with goal difficulty. They concluded that ". . . there is strong support for Locke's goal difficulty proposition [13:835]."

In later research, Latham, Mitchell, and Dossett (12) found a positive linear relationship between goal difficulty and performance, and concluded that ". . . given goal acceptance, the more difficult the goal, the higher the performance [12:169]." Most authors caution that the goals must be accepted before they have any effect on performance.

Goal Specificity

In their research, Latham and Yukl reviewed eleven studies which examined the effects of setting specific goals (13). They found ten which supported the proposition that setting specific goals improves performance. They questioned the validity of the measure of goal setting in the non-supporting study.

To obtain more information on the effects of setting specific goals, Latham and Yukl looked at studies of management by objectives (MBO) programs in organizations. A primary requirement of any MBO program is the setting of specific performance goals. Often employee personal development goals are also set. Because the employees participate in setting the goals and developing the criteria for evaluating goal achievement, they are expected to be committed to the goals (13:830).

After studying eight MBO programs, Latham and Yukl concluded that they

> . . . all found some support for the proposition that setting specific goals can result in improved performance although some limiting conditions were present [13:832].

The major limiting condition was the fact that an MBO program usually involves other changes along with the introduction of goal setting. For this reason it is impossible to isolate the effect caused solely by goal setting.

When taken as a whole, the empirical data supports Locke's proposition that setting specific goals improves performance.

Participation in Goal Setting

Studies have been conducted to assess the effect on performance of goals determined by member participation versus assigned goals or instructions to "do your best."

Latham, Mitchell, and Dossett studied college-educated engineers/scientists and their managers in a corporation and concluded that

> The importance of employee participation in goal setting remains equivocal. . . . There was no significant difference between performance of the participative--and assigned--goal-setting groups [12:170].

They found that participation was important only in that it affected the difficulty of the goals. Employee participation led to higher goals being set and hence better performance.

In all cases, both participative and assigned goal setting led to significantly better performance than the "do-your-best" and no-goal control groups.

Latham and Yukl emphasized the importance of goal acceptance as a necessary precondition to performance. They pointed to some factors which influence goal acceptance. These include the employee's perception that the goal is reasonable, and a perceived contingency between goal accomplishment and desired outcomes. It was determined that if an employee has high self-assurance and has had more successes than failures in goal attainment, difficult goals are more likely to be perceived as challenging rather than impossible (13:835).

Role Ambiguity

Role ambiguity is an important factor which can have both individual and organization-wide performance implications. Kahn et al. provide a definition.

> Role ambiguity is a direct function of the discrepancy between the information which is available to the person and that which is required for the adequate performance of his role. Subjectively, it is the difference between his actual state of knowledge and that which would provide adequate satisfaction of his personal needs and values [11:73].

Greene and Organ list three important dimensions of a person's "received role" which should be present to help eliminate role ambiguity. A person should (1) correctly perceive what others expect (role accuracy), (2) have a

subjective sense of certainty of how to meet the expectations (role clarity), and (3) be in agreement with others about what the expectations should be (role consensus) (7:95).

These three dimensions are considered necessary for an individual to experience satisfaction; and their absence has been found to result in anxiety and other manifestations of psychological stress (7:95).

In their research, Kahn et al. identified three conditions which are significant determinants of role ambiguity in organizations:

1. The size and complexity of many modern organizations exceeds the individual's span of comprehension;

2. The rate of organizational change contributes to ambiguity in three areas--

a. Organizational growth with tendencies toward decentralization;

b. Changes in the social structure which are due to changes in technology;

c. Frequent personnel changes; and (11:76)

3. Current managerial philosophies tend to restrict communications and limit the individual to information necessary to do his job. This occurs because of management's efforts to control the workers, rivalries within a company, and for security reasons (11:78).

These conditions listed, and others, tend to contribute to role ambiguity which may be perceived differently by different workers. A person may experience (11:84):

1. Uncertainty about the scope of his responsibilities.

2. Uncertainty about what is expected of him by others.

3. Uncertainty about what behaviors will be effective in meeting these expectations.

4. An ambiguous organizational structure.

5. Uncertainty about who has a legitimate right to influence him.

6. Uncertainty about the limits of his authority over others.

7. Confusion over organizational rules and regulations.

8. Uncertainty about how he is evaluated by his associates.

9. Doubt about how his associates are satisfied with his behavior.

10. Uncertainty about job security.

11. Uncertainty about opportunities for advancement.

The emotional reactions to these forms of ambiguity take many forms. They range from tension and anxiety through fear, anger and hostility, to futility and apathy (11:84).

Although the range of emotional reactions to ambiguity is large, there are some documented and predictable consequences of serious and prolonged ambiguity in an organization. Valenzi and Dressler determined ". . . its effects appear to be generally consistent and closely associated with individual stress, tension, anxiety, and dissatisfaction [21:672]."

There appears to be a consensus in the literature that there is a significant negative relation between ambiguity and satisfaction (11:85; 21:672).

Kahn et al. also determined that ambiguity can cause a loss of self-confidence and create feelings of futility in the worker (11:85). Individuals with a high need for recognition were more negatively affected by unstructured (higher ambiguity) situations. The effects of ambiguity on tension scores are considerably more pronounced for persons scoring high in need for cognition (11:87).

Studies have been done comparing ambiguity with role conflict. Although they share some common sources, such as organizational size and complexity and rapid change, they have been found to be independent of each other as causes of stress in an organization (11:89).

Kahn et al. discuss the implications of the techniques used by workers in coping with ambiguity as they affect interpersonal relationships.

1. It becomes difficult to maintain close bonds with associates in an ambiguous environment. Feelings of trust are noticeably lacking.

2. Ambiguity affects interpersonal relationships in the areas of uncertainty about how one is evaluated by his associates and how satisfied they are with his behavior. Doubts in this area undermine trust and respect in an organization.

3. There is sometimes a reduction in communication, but this is moderated by the individual's need and desire for more information which should cause him to open up to others, rather than close up.

Summary and Conclusions

The literature reviewed agreed that ambiguity is negatively correlated with satisfaction in studies made in the work environment. To decrease ambiguity, management must work to promote role accuracy, role clarity, and role consensus within an organization.

CHAPTER III

METHODOLOGY

Overview

In order to accomplish the research objectives, the data from the OAP data base was analyzed to identify significant variations in the factors measured by the OAP. Questions were formulated for presentation to the Air Staff and maintenance AFSC functional area managers to generate discussion and explanation. This methodology section provides a description of: (1) the subset of data from the OAP data base used in the analysis; (2) the process used to identify significant factor variations to be analyzed; and (3) how the questions were formulated and answers were obtained.

Data Description

The OAP data base contains information from a 109-question survey which is used as the first step in the LMDC base consultation visits. The OAP survey generates demographic data and 21 statistical factors which are derived from a set of attitudinal questions covering such areas as management, supervision, communication, and performance within the organization (2). The factors comprise the dependent variables described later in this report.

Population

The population to which results were generalized was the Air Force maintenance work force. Caution should be taken in making such generalizations, as the only selection process used by LMDC in choosing bases to survey is a request by each base for a consultation visit. Although no specific effort was made by LMDC to obtain a representative sample (16), the bases surveyed over eight quarters represent all MAJCOMs (see Appendix D).

Sample

The sample included male and female enlisted personnel ranging in age from 17 to more than 56 years of age, and in rank from Airman Basic to Chief Master Sergeant. The number of months in present career field ranged from less than one to more than thirty-six. Most ethnic groups were represented, and the sample contained personnel educated in degree ranging from less than high school up to and including the doctoral degree. Highest service school completed ranged from Noncommissioned Officer (NCO) phase 1 to Senior Service School graduates.

The sample contained a range of personnel with no supervisory responsibilities up to some supervisors of ninety or more subordinates. Work group size varied from one to six or more, with schedules varying from stabilized day shifts and standard shift work to irregular schedules.

Rated and non-rated personnel were included and all MAJCOMs were represented. Years in the Air Force went from less than one to more than thirty, and career intentions varied from plans to separate as soon as possible to plans for over thirty years of service.

Variables. Data obtained from the OAP was in the format of OAP factor scores for different AFSCs over eight quarters, with the OAP factor scores being the dependent variables.

1. Air Force Specialty Codes. The sample was taken from enlisted personnel in nine maintenance AFSC groups in the U.S. Air Force, and a tenth sample consisting of all other enlisted personnel in the Air Force (see Figure 1). AFR 39-1 (20) provides a general description of each of the career fields. These are summarized in Appendix C.

2. Quarters. The OAP factor scores were obtained for eight calendar quarters beginning with the second quarter of 1979 and ending with the first quarter of 1981.

3. OAP Factors. The OAP factor values were treated as the dependent variables in the statistical analysis. The factors examined in the analysis are reflected in Figure 2. With the exception of factor 825, the OAP factor scores are numerical values which have a range from one, indicating disagreement or dissatisfaction,

AFSC	Title	N
29XXX	All Other Enlisted	31,300
30XXX	Communications-Electronics Systems	2,500
31XXX	Missile Electronics Maintenance	600
32XXX	Avionics Systems	2,100
34XXX	Training Devices	200
39XXX	Maintenance Management Systems	300
40XXX	Intricate Equipment Maintenance	100
42XXX	Aircraft Systems Maintenance	3,300
43XXX	Aircraft Maintenance	3,300
46XXX	Munitions and Weapons Maintenance	1,900

Fig. 1. Sample Air Force Specialty Code Distribution

1.	800	Skill Variety
2.	801	Task Identity
3.	802	Task Significance
4.	804	Job Feedback
5.	805	Work Support
6.	806	Need for Enrichment Index (Job Desires)
7.	810	Job Performance Goals
8.	811	Pride
9.	812	Task Characteristics
10.	813	Task Autonomy
11.	814	Work Repetition
12.	816	Desired Repetitive Easy Tasks
13.	817	Advancement/Recognition
14.	818	Management-Supervision
15.	819	Supervisory Communications Climate
16.	820	Organizational Communications Climate
17.	821	Perceived Productivity
18.	822	Job Satisfaction
19.	823	Job Related Training
20.	824	General Organizational Climate
21.	825	Motivating Potential Score

Fig. 2. OAP Factors

to seven, indicating a high level of agreement or satisfaction. Factor 825, motivation potential score, as explained previously, is a composite of several factors and has a value range from 1 to 343.

A more detailed description of the questions which make up each of the factors may be found in Appendix C. The literature review in this research relates some of the factors to more popular theories in current organizational literature.

Factor Identification and Selection

Identifying important OAP factor variations over time and establishing their significance level was a necessary first step in the descriptive analysis of the data. It is reemphasized at this point that the objective of this study was to identify and explain some of the most obvious or outstanding variations in the data. No attempt was made to be exhaustive in the identification of significant variations.

Preliminary Identification

The method chosen for preliminary identification of variations which might be of importance in the analysis, was a visual technique. The OAP factor values were plotted over the eight quarters on grids according to AFSC. To keep the graphs understandable and meaningful the factors

were color coded and some of the factors were plotted on transparent overlays.

The initial analysis was to identify significant changes over time, within a particular AFSC, and particularly those common to several factors. By visual inspection, "peaks" and "valleys" were noted and recorded. For the initial analysis, all peaks and valleys which appeared to have significance were identified and listed. From this list, the two most obvious variations were identified (for each AFSC) for further analysis and to be used in the formulation of questions for functional managers of the particular Air Force Specialty Codes.

Determination of Significance

Significance Testing. To determine the significance of the variations in the OAP factor data a form of the two sample t test was employed to compare the value of the quarter of variation against the mean of the values of the other seven quarters for that particular factor. Two basic calculations were required. The first was to adjust the OAP factor mean for eight quarters to one for seven quarters by removing the OAP factor value for the quarter being compared. The second calculation was the computation of a form of the test statistic, t, for comparing the OAP factor value of the quarter in variation against the mean OAP factor value of the other seven quarters.

To calculate the mean of the seven quarters other than the one in variation, the following computation was used

$$\bar{x}_{OTHER} = \frac{N\bar{\bar{x}} - n_i\bar{x}_i}{N - n_i}$$

where,

i = quarter of OAP factor value being considered,

N = number in total sample for all eight quarters,

$\bar{\bar{x}}$ = mean OAP factor value for all eight quarters,

n_i = number in sample for quarter i,

$\bar{x}_i$ = mean OAP factor value for quarter i, and

$\bar{x}_{OTHER}$ = mean OAP factor value for remaining seven quarters after value for quarter i has been removed.

The mean of the remaining seven quarters was used to calculate the test statistic, z, which was used to compare that mean with the OAP factor value of the quarter of variation. To test the significance it was hypothesized that the OAP factor value for the quarter of variation was equal to the mean for the other seven quarters.

$$H_0: \mu_i = \mu_{OTHER}$$
$$H_a: \mu_i \neq \mu_{OTHER}$$

where,

μ_i = mean OAP factor value for quarter of variation, and

μ_{OTHER} = mean OAP factor value for other seven quarters.

These hypotheses were tested using a form of the two-sample t test. In using the t test, the following assumptions were made:

1. The distribution of both parent populations is normal.

2. The variance of the first population equals the variance of the second population or $\sigma_1^2 = \sigma_2^2$.

When the t test is applied to samples of such a large size (n=100 to n=31,000) the degrees of freedom are much greater than 120 and the z test statistic form of the t test applies.

$$z = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\left(\frac{\sigma_1^2}{n_1}\right) + \left(\frac{\sigma_2^2}{n_2}\right)}} \qquad (9:292)$$

For the purpose of testing the hypothesis $\mu_1 = \mu_2$, and because the variations were assumed to be equal, and approximated by the sample variation s, this equation could be reduced to a more manageable form:

$$z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{2_2}\right)}}$$

where s^2 = the sample variation for the eight quarters being considered.

Using the symbology introduced earlier in this report, and substituting for the n_2 term, the statistic becomes:

$$z = \frac{\bar{x}_i - \bar{x}_{OTHER}}{S\sqrt{\frac{1}{n_i} - \frac{1}{N-n_i}}}$$

This is the form of the test statistic which was used in computation of significance levels for the quarters of variation that were observed in the data.

Level of Significance. A level of significance (alpha level) of 0.05 was used in the tests, as it is generally accepted and widely used in the social sciences. Using the two-sided test meant rejection of H_0 if

$z > z_{\alpha/2}$ of if

$z < -z_{\alpha/2}$

From the z tables:

$$z_{.05/2} = z_{.025} = 1.96 \qquad (9:A-27)$$

The test structured in this way called for the rejection of H_0 if

$z > 1.96$ or

$z < -1.96$

The OAP factor variations identified visually were tested using the procedures described above, and those

determined to be significant at the alpha level of .05 were studied and used in the formulation of questions which were presented in a discussion with the managers of the respective AFSC career fields.

Questions and Answers

The variations which proved to be significant at the .05 level were noted and research questions were formulated. An example of this process is the Communications and Electronics Systems (30XXX) career field data which indicated that OAP factor 802, task significance, decreased significantly in the third quarter of 1979 and then increased even more significantly in the fourth quarter of 1979. The managers of the 30XXX career field were asked to explain these variations.

Questions were compiled for each of the significant variations and a meeting was scheduled with the maintenance career field functional managers and other maintenance headquarters personnel at the Air Force level (LEYM). The meeting followed a simple three-part agenda beginning with a briefing on the Organizational Assessment Package, describing what it measures and a brief overview of some of the organizational theory involved.

Second on the agenda was a briefing of the significant findings of this study, which included the research questions generated by the variations.

The presentation of the findings and research questions was followed by an open meeting in which Air Staff functional area managers offered explanations as to why the variations occurred in light of significant events in the management of their respective areas.

The discussion was recorded and analyzed. From this analysis came many of the recommendations and conclusions of this study.

CHAPTER IV

RESULTS OF RESEARCH

The results presented here are the research questions which were generated by the visual and statistical analysis of the variations in the OAP factor data for the different AFSCs. Included with the questions are tables showing the statistical significance of the individual factor variations from which the questions were formulated. The tables also include factors which were evaluated but not used in the research questions because they were not significant to the 0.05 level.

The z values provide an indication of the relative significance of different factor variations. As stated earlier, z must equal 1.96 for alpha level of significance of 0.05.

The z values associated with other levels of significance are shown in Figure 3.

Alpha	z
.10	1.645
.05	1.960
.01	2.575
.001	3.300

Fig. 3. Significance Levels (9:A-27)

This section includes the results of the preliminary statistical analysis. Results of the discussions with the Air Staff and functional area managers are presented in the Chapter, "Discussion with Air Staff."

Research Questions

1. 29XXX--All Other Enlisted Personnel. Why did factors 800, 801, 802, 804, 806, 810, 811, 813, 817, 818, 819, 820, 821, 822, and 824 experience a statistically significant increase in 1QCY80, followed by a statistically significant decrease in 2QCY80? (See Table 1)[1]

2. 29XXX--All Other Enlisted Personnel. Why did Skill Variety (800) decrease significantly in 2QCY80, remain significantly low in 3QCY80, then increase significantly in 4QCY80 and 1QCY81? (See Table 2)

3. 30XXX--Communications and Electronics Systems. Why did factors 801, 802, 804, 805, 810, 811, 812, 820, 821, 822, 823, and 824 decrease significantly in 3QCY79? (See Table 3)

4. 30XXX--Communications and Electronics Systems. Why did Tasks Significance (802) decrease significantly in 3QCY79, then increase significantly in 4QCY79? (See Table 4)

5. 31XXX--Missile Electronics Maintenance. Why did factors 800, 802, 811, 812, 817, 822, and 823 rise

[1]All of the tables referred to in this section appear at the end of this chapter.

to a statistically significant increase in 3QCY79? (See Table 5)

6. 31XXX--Missile Electronics Maintenance. Why did factors 800, 802, 811, 812, 819, 820, 821, 822, 823, and 824 decrease significantly in 1QCY81? (See Table 6)

7. 32XXX--Avionics Systems. Why did Perceived Productivity (821) and Job Related Training (823) decrease significantly in 3QCY80, then increase significantly in 4QCY80? (See Table 7)

8. 32XXX--Avionics Systems. Why did Skill Variety (800) and Task Autonomy (813) decrease significantly in 4QCY80, then increase significantly in 1QCY81? (See Table 8)

9. 34XXX--Training Devices. Why did factors 818, 821, and 823 decrease significantly in 1QCY81? (See Table 9)

10. 34XXX--Training Devices. Why did Management Supervision (818) decrease significantly in 3QCY80, increase in 4QCY80 (not significant) and decrease significantly in 1QCY81? (See Table 10)

11. 39XXX--Maintenance Management Systems. Why did Management Supervision (818) increase significantly in 4QCY79, decrease in 1QCY80 (not significant), increase in 3QCY80 (not significant), then decrease significantly in 1QCY81? (See Table 11)

12. 40XXX--Intricate Equipment Maintenance. Why did factors 818, 819, 821, and 824 decrease in 3QCY79

(818, 819, 821 not significant), then increase significantly in 1QCY80? (See Table 12)

13. 40XXX--Intricate Equipment Maintenance. Why did factors 800, 801, 804, 812 and 825 increase significantly in 4QCY79? (See Table 13)

14. 42XXX--Aircraft Systems Maintenance. Why did factors 802, 811, 820, 821, 823 and 824 decrease significantly in 3QCY79 (823 not significant), increase significantly in 1QCY80 (820 not significant), then decrease significantly in 3QCY80 (802 not significant)? (See Table 14)

15. 42XXX--Aircraft Systems Maintenance. Why did Skill Variety (800) and Task Autonomy (813) increase significantly in 1QCY81? (See Table 15)

16. 42XXX--Aircraft Systems Maintenance. Why did factors 805, 820, 821, 823, and 824 decrease significantly in 1QCY81? (See Table 16)

17. 43XXX--Aircraft Maintenance. Why did Task Identity (801), and Job Related Training (823) increase significantly in 4QCY79, gradually decrease to 4QCY80 (significant decrease), then increase significantly in 1QCY81? (801 increase in 1QCY81 not significant). (See Table 17)

18. 43XXX--Aircraft Maintenance. Why did factors 802, 811, and 824 experience a statistically significant decrease in 3QCY79? (See Table 18)

19. 46XXX--Munitions and Weapons Maintenance. Why did factors 800, 802, 805, 810, 811, 812, 818, 820, 821

822, 823, and 824 increase significantly in 1QCY80? (See Table 19)

20. 46XXX--Munitions and Weapons Maintenance. Why did Need for Enrichment Index (805) rise to a statistically significant peak in 4QCY80 when most other factors were decreasing? (See Table 20)

Statistical Significance of Research Question Factors

The following tables contain the z values indicating the significance of the factors listed by AFSC and quarter. Values in parentheses were not significant to a level of alpha = .05, but are included to give an indication of the relative significance of the factors.

TABLE 1

RESEARCH QUESTION NUMBER 1--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 29XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1980	2nd Qtr 1980
800	11.646	-24.039
801	11.664	- 7.939
802	11.831	-21.402
804	10.045	-22.651
805	0	- 3.328
806	10.704	-12.373
810	10.326	-13.575
811	13.955	-18.738
813	6.217	-29.245
817	6.456	-11.458
818	6.605	- 2.030
819	7.626	- 4.557
820	9.464	-16.050
821	11.413	-16.269
822	11.565	-21.919
823	(-0.482)*	- 7.674
824	13.721	-18.277

*Numbers in parentheses in Table 1 and succeeding tables denote values not significant at .05 alpha level.

TABLE 2

RESEARCH QUESTION NUMBER 2--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 29XXX	Z TEST VALUES			
	Quarter			
Factor	1st Qtr 1980	2nd Qtr 1980	3rd Qtr 1980	4th Qtr 1980
800	-24.039	- 6.132	4.234	12.473

TABLE 3

RESEARCH QUESTION NUMBER 3--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 30XXX	Z TEST VALUES
	Quarter
Factor	3rd Qtr 1979
801	- 5.188
802	- 6.933
804	- 2.978
805	- 5.914
806	(- 1.090)
810	- 4.190
811	- 6.494
812	5.341
813	(- 1.849)
818	(- 0.176)
819	(- 0.326)
820	- 7.068
821	- 3.356
822	- 6.526
823	- 3.985
824	- 7.687

TABLE 4

RESEARCH QUESTION NUMBER 4--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 30XXX	Z TEST VALUES		
	Quarters		
Factor	3rd Qtr 1979	4th Qtr 1979	1st Qtr 1980
802	6.933	10.004	(-1.204)

TABLE 5

RESEARCH QUESTION NUMBER 5--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 31XXX	Z TEST VALUES
	Quarter
Factor	3rd Qtr 1979
800	2.874
801	(-0.302)
802	2.011
805	(0.396)
806	(0.914)
810	(1.639)
811	3.383
812	2.281
813	(1.809)
817	3.446
818	(-0.796)
819	(1.451)
820	(1.248)
821	(0.937)
822	3.697
823	2.838
824	(1.595)

TABLE 6

RESEARCH QUESTION NUMBER 6--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 31XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1981
800	-4.784
801	(-1.337)
802	-2.579
805	(-0.431)
806	(-1.124)
810	(-0.112)
811	3.542
812	3.019
813	(-0.957)
817	(-1.328)
818	(0.179)
819	4.441
820	4.412
821	5.408
822	4.831
823	4.374
824	4.027

TABLE 7

RESEARCH QUESTION NUMBER 7--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 32XXX	Z TEST VALUES	
	Quarter	
Factor	3rd Qtr 1980	4th Qtr 1980
821	-4.857	(0.664)
823	2.616	(1.387)

TABLE 8

RESEARCH QUESTION NUMBER 8--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 32XXX	Z TEST VALUES	
	Quarter	
Factor	4th Qtr 1980	1st Qtr 1981
800	-2.502	-3.608
813	-3.600	(-0.689)

TABLE 9

RESEARCH QUESTION NUMBER 9--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 34XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1981
814	-2.063
818	-2.509
819	-3.380
821	-4.452
824	-3.554
825	(0.424)

TABLE 10

RESEARCH QUESTION NUMBER 10--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 34XXX	Z TEST VALUES			
	Quarter			
Factor	2nd Qtr 1980	3rd Qtr 1980	4th Qtr 1980	1st Qtr 1981
818	(1.329)	-2.310	(0.474)	-3.785

TABLE 11

RESEARCH QUESTION NUMBER 11--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 39XXX	Z TEST VALUES			
	Quarter			
Factor	4th Qtr 1979	1st Qtr 1980	3rd Qtr 1980	1st Qtr 1981
181	2.647	(-1.783)	(1.911)	-2.509)

TABLE 12

RESEARCH QUESTION NUMBER 12--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 40XXX	Z TEST VALUES	
	Quarter	
Factor	3rd Qtr 1979	1st Qtr 1980
181	(-1.616)	2.284
819	(-1.490)	2.212
820	(-1.695)	(1.767)
821	(-1.783)	2.488
823	(-1.002)	(1.867)
824	-2.476	2.346

TABLE 13

RESEARCH QUESTION NUMBER 13--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 40XXX	Z TEST VALUES
	Quarter
Factor	4th Qtr 1979
800	2.483
801	3.525
804	2.341
811	(0.978)
812	3.046
813	(1.468)
825	2.167

TABLE 14

RESEARCH QUESTION NUMBER 14--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 42XXX	Z TEST VALUES		
	Quarter		
Factor	3rd Qtr 1979	1st Qtr 1980	3rd Qtr 1980
802	-3.295	4.520	(-1.821)
805	(-0.178)	(-1.640)	(-0.032)
811	-3.182	6.179	(-0.035)
812	(-1.957)	(-0.035)	(-0.638)
818	(-0.010)	(-0.189)	-2.828
819	(-0.673)	(1.250)	-2.785
820	-2.855	(0.661)	-3.625
821	-2.631	2.533	-3.578
822	(-1.395)	4.639	(-1.722)
823	(-1.488)	3.593	-2.165
824	-2.585	3.494	4.172

TABLE 15

RESEARCH QUESTION NUMBER 15--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 42XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1981
800	6.580
801	(1.676)
802	(-1.777)
813	3.465
817	(1.273)
819	(1.237)

TABLE 16

RESEARCH QUESTION NUMBER 16--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 42XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1981
805	-3.392
820	-2.224
821	-2.210
823	-2.351
824	-2.224

TABLE 17

RESEARCH QUESTION NUMBER 17--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 43XXX	Z TEST VALUES		
	Quarter		
Factor	4th Qtr 1979	4th Qtr 1980	1st Qtr 1981
801	5.138	-2.868	(-0.652)
823	6.225	-4.087	-4.299

TABLE 18

RESEARCH QUESTION NUMBER 18--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 43XXX	Z TEST VALUES			
	Quarter			
Factor	3rd Qtr 1979	4th Qtr 1979	4th Qtr 1980	1st Qtr 1981
800	(-0.704)	3.222	-4.498	2.888
801	(0.804)	5.138	-2.868	(-0.652)
802	-3.958	(-0.162)	(-1.023)	3.612
811	-2.023	3.629	-4.449	(0.613)
812	(-1.605)	3.045	-3.848	(1.698)
813	(1.986)	(1.559)	-4.101	(0.077)
821	(-0.098)	(2.567)	-3.212	(0.000)
823	(-0.444)	6.071	-4.078	-4.299
824	-2.464	(1.075)	(-1.197)	(-0.725)

TABLE 19

RESEARCH QUESTION NUMBER 19--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 46XXX	Z TEST VALUES
	Quarter
Factor	1st Qtr 1980
800	2.592
802	2.442
806	2.106
810	6.875
811	6.547
812	3.147
818	2.269
819	(1.805)
820	2.730
821	12.251
822	5.190
823	3.073
824	4.538

TABLE 20

RESEARCH QUESTION NUMBER 20--STATISTICAL SIGNIFICANCE OF OAP FACTORS

AFSC 46XXX	Z TEST VALUES
	Quarter
Factor	4th Qtr 1980
806	2.576

CHAPTER V

DISCUSSION WITH AIR STAFF

Introduction

The research questions generated by the visual and statistical analysis of the OAP data were briefed to Air Staff maintenance functional managers in a working conference at the Pentagon on November 4, 1981. The insights and plausible hypotheses of the functional managers were discussed and recorded on worksheets provided for that purpose.

A summary of Air Staff input to this data is presented here. It is cautioned that this section contains the perceptions of the Air Staff functional managers and, although they have been reported as accurately as possible, it was beyond the scope of this research to verify their validity. The terms Air Staff and functional area manager are considered to be synonymous.

Research Questions

Research Question #1. *29XXX--All Other Enlisted Personnel. Why did factors 800, 801, 802, 804, 806, 810, 811, 813, 817, 818, 819, 820, 821, 822, and 824 experience a statistically significant increase in 1QCY80, followed by a statistically significant decrease in 2QCY80?* The Air

staff did not attempt to explain each factor variation individually but, rather, felt that there was one primary cause which explains most of the variations. With such a large sample (all other enlisted: N=31,300) the explanation offered was one which would apply to the entire Air Force. The Air Staff concluded that the statistically significant increase in the first quarter of 1980 was due primarily to an announcement by President Carter of a proposed 11.7 percent pay raise. It was the general opinion of the Air Staff that favorable pay increases, or announcements of them, had the effect of overriding other unfavorable job related items such as increased work loads or longer hours.

In explaining the significant decrease of many factors in the second quarter of 1980, the general consensus was that it was probably a result of an Air Force-wide drop in morale due to the unsuccessful attempt to rescue the Iranian Embassy hostages in April of 1980.

Research Question #2. *29XXX--All Other Enlisted Personnel. Why did Skill Variety (800) decrease significantly in 2QCY80, remain significantly low in 3QCY80, then increase significantly in 4QCY80 and 1QCY81?* Following the reasoning explained in research question one, the Air Staff concluded that the variations in Skill Variety could not be explained in isolation when the sample was so large and varied.

Research Question #3. *30XXX--Communications and Electronics Systems. Why did factors 801, 802, 804, 805, 810, 811, 812, 820, 821, 822, 823, and 824 decrease significantly in 3QCY79?* In explaining the significant decreases in the third quarter of 1979 in the 30XXX career field, the functional area managers keyed on Job Related Training as an important factor. In that quarter they cited the "failure of Air Training Command (ATC) to respond, as promised, to previous reductions in formal training [19]." These reductions in formal training caused the competence level to be lowered with a resultant decrease in many of the factors in this research question (such as Work Support, Pride, and Perceived Productivity). ATC had promised to increase the training to previous levels, but due to budget constraints was not able to. This breach of promise was cited as a probable reason for decreases in Organizational Communications Climate, General Organizational Climate, and also in Job Satisfaction.

The decrease in factor values for the third quarter of 1979 was further explained by the fact that this was the quarter when remote tours rotated. When the rotations took place there were personnel who were dissatisfied because they had to rotate, and there were also personnel who were unhappy with their assignments upon returning from rotation.

Research Question #4. *30XXX--Communications and Electronics Systems. Why did Tasks Significance (802) decrease significantly in 3QCY79, then increase significantly in 4QCY79?* Also, in the 30XXX career field, the Air Staff related the decrease in Task Significance in the third quarter of 1979 to the decreased training as described above. When the training was decreased, the emphasis was shifted from training in repair of the system to training in how to remove the problem component and transport it to a specialist for the actual repair work.

Another possible reason for the decrease was emphasis away from individuals completing an entire job due to personnel shortfalls in the 30XXX career field during that time frame.

Research Question #5. *31XXX--Missile Electronics Maintenance. Why did factors 800, 802, 811, 812, 817, 822, and 823 rise to a statistically significant increase in 3QCY79?* The functional managers attributed the significant increase in the third quarter of 1979 to a decision by the Air Force to transfer 3161L mechanical/test responsibilities to 461X0. They reasoned that the personnel in this career felt they were being underutilized with respect to their skills, and the transfer would allow them to more fully develop their capabilities.

Research Question #6. *31XXX--Missile Electronics Maintenance. Why did factors 800, 802, 811, 812, 819, 820, 821, 822, 823, and 824 decrease significantly in 1QCY81?* The functional area managers attributed the decrease during the first quarter of 1981 to uncertainties about the future of the 3161L specialty code. MAJCOMs were not keeping the affected personnel informed of planned actions for either retraining into a new career field or phasing out. Uncertainty was also increased by indecision over the MX program at that time.

Research Question #7. *32XXX--Avionics Systems. Why did Perceived Productivity (821) and Job Related Training (823) decrease significantly in 3QCY80, then increase significantly in 4QCY80?* The Air Staff attributed the decreases in Perceived Productivity and Job Related Training to a high draw to the private sector of the better trained personnel in Avionics Systems. This loss was not adequately filled, thus creating a shortage of properly trained personnel and a perception of declining productivity.

In order to fill the shortages, many personnel were withdrawn from one skill area and entered into another without the benefit of adequate training. To make the problem worse, many of those being transferred did not perceive the new skill areas to be as important as those

they were leaving. Also contributing to the decreases in Job Related Training were technological advances through the addition of F-15, F-16, E-3, and E-4 aircraft which, incidentally, were also not matched by adequate training in the maintenance of these advanced weapons systems.

The functional area managers further stated that there are twenty separate skills within the 32XXX career field, many of which are further shredded to specific weapons systems. Personnel are often reclassified to new skills due to force structure changes. This instability of skill areas further compounds the problems described above.

The statistically significant increase in Perceived Productivity in the fourth quarter of 1980 was attributed to an 11.7 percent pay raise and higher selective reenlistment bonuses in the career field.

Higher factor scores for Job Related Training were thought to be a result of the improvement of training courses through increases in class hours on electronic principles during the fourth quarter of 1980.

Research Question #8. *32XXX--Avionics Systems*

Why did Skill Variety (800) and Task Autonomy (813) decrease significantly in 4QCY80, then increase significantly in 1QCY81? The Air Staff explained both the decreases in the fourth quarter of 1980 and increases in the first quarter

of 1981, in the Avionics Systems career field, as ". . . the tail of the dog represented by question seven [19]." They said that the decreases were explained by the draw to new skills to fill new requirements, and the increases of both Skill Variety and Task Autonomy would be follow-ons to the improvement in Job Related Training.

Research Question #9. *34XXX--Training Devices. Why did factors 818, 821, and 823 decrease significantly in 1QCY80?* According to the functional area managers, the decreases in Management Supervision and Supervisory Communications Climate in the Training Devices career field were probably a result of disagreement between operations and maintenance over control of the personnel. "There remain considerable differences of opinion as to who they (34XXX enlisted) work for: ops. or maintenance [19]." Supervision and communication within the organization are further complicated by the fact that the career field contains seven diverse specialty areas.

The Air Staff accounted for the decreases in Perceived Productivity and Job Related Training by citing the transition taking place at that time from analog to digital equipment. Many personnel were being converted in place without proper training.

Research Question #10. *34XXX--Training Devices. Why did Management Supervision (818) decrease significantly*

in 3QCY80, increase in 4QCY80 (not significant), and decrease significantly in 1CY81? The decreases and increase cited in this research question were explained by the dispute over control of the Training Devices personnel by operations and maintenance as described above.

Research Question #11. *39XXX--Maintenance Management Systems. Why did Management Supervision (818) increase significantly in 4QCY79, decrease in 1QCY80 (not significant), increase in 3QCY80 (not significant), then decrease significantly in 1QCY81?* In describing the Maintenance Management functional area, the Air Staff stated: "This career field has been in a state of turmoil for the past three years [19]." The two skill areas in the field are 391XXX and 392XXX. The 391XXX (Analysis), described by the Air Staff as a difficult skill, has newly recruited airmen assigned to it. The 392XXX (Scheduler) is less demanding but is filled only by crosstraining individuals from other skills.

According to the functional area managers, the increases were directly related to the announcement of a new computer system to be used by both specialty areas. The decreases were attributed to "rumors about changes to the career field structure and learning that they again, did not quality for a reenlistment bonus [19]."

Research Question #12. *40XXX--Intricate Equipment Maintenance. Why did factors 818, 819, 821, and 824 decrease in 3QCY79 (818, 819, 821 not significant), then increase significantly in 1QCY80?* The Air Staff was unable to explain the decreases during the third quarter of 1979 in the Intricate Equipment Maintenance career field. They felt that the increases in the first quarter of 1980 were due to the acquisition of some new aircraft systems.

Research Question #13. *40XXX--Intricate Equipment Maintenance. Why did factors 800, 801, 804, 812 and 825 increase significantly in 4QCY79?* The increases in the fourth quarter of 1979 were also attributed to the acquisition of new aircraft systems.

Research Question #14. *42XXX--Aircraft Systems Maintenance. Why did factors 802, 811, 820, 821, 823 and 824 decrease significantly in 3QCY79 (823 not significant), increase significantly in 1QCY80 (820 not significant), then decrease significantly in 3QCY80 (802 not significant)?* The Air Staff pointed to high aircraft sortie rates (to meet end of fiscal year flying hour goals) as the most probable cause for decreases in Organizational Climate in the Aircraft Systems Maintenance career field during the third quarter of 1979.

The functional area manager feels that Job Related Training and Task Significance are directly

related, and Perceived Productivity is a natural outgrowth from them. The fluctuations in these factors were attributed to force structure changes in which familiar F-4s were being replaced by new F-15s, F-16s, and A-10s. Personnel were required to learn new tasks, and fluctuations in Task Significance were a function of the degree to which new tasks could be understood and accomplished after being retrained. Productivity was reactive to the training and Task Significance, according to the functional manager. In consideration of the first quarter of 1980, the Air Staff stated: "increases [were] driven solely by pay [19]."

Research Question #15. *42XXX--Aircraft Systems Maintenance. Why did Skill Variety (800) and Task Autonomy (813) increase significantly in 1QCY81?* A possible explanation for the increases in Skill Variety and Task Autonomy in the first quarter of 1981 was that a "pay increase establishes a mindset that drives up indicators not directly related to pay [19]." Other causes of the increases may have been programs which were in effect in the career field at that time providing for additional training and for personnel to work in areas other than their primary specialties.

Research Question #16. *42XXX--Aircraft Systems Maintenance. Why did factors 805, 820, 821, 823, and 824 decrease significantly in 1QCY81?* The Air Staff proposed

the following explanations for the decrease of factors in the Aircraft Systems Maintenance career field in the first quarter of 1981. Work Support decreased because flying requirements were up without a corresponding increase in the availability of support equipment and spare parts, especially for the new systems.

Job Related Training decreased because of continued increases in new aircraft without corresponding increases in training programs to provide the new knowledge and skills required. The decreases in Work Support and Job Related Training together probably explain the decrease in Perceived Productivity. The functional managers allege that Organizational Communications Climate was low because management failed to explain the nonavailability of support equipment and the inadequacy of the training programs, and that they did not forecast a time that these conditions might improve.

Research Question #17. *43XXX--Aircraft Maintenance. Why did Task Identity (801), and Job Related Training (823) increase significantly in 4QCY79, gradually decrease to 4QCY80 (significant decrease), then increase significantly in 1QCY81? (801 increase in 1QCY81 not significant).*
The Air Staff explanation for the variations in Task Identity and Job Related Training in the Aircraft Maintenance career field were the same as those for the variations in

the Aircraft Systems Maintenance field since the two specialty code areas are closely related and were affected by the same management and force structure influences.

Research Question #18. *43XXX--Aircraft Maintenance. Why did factors 802, 811, and 824 experience a statistically significant decrease in 3QCY79?* The hypotheses extended by functional staff for research questions 16 and 17 are equally applicable to the Aircraft Maintenance factor variations in this research question.

Research Question #19. *46XXX--Munitions and Weapons Maintenance. Why did factors 800, 802, 805, 810, 811, 812, 818, 820, 821, 822, 823, and 824 increase significantly in 1QCY80?* The Air Staff attributed the many factor increases in the Munitions and Weapons Maintenance career field during the first quarter of 1980 to assimilation, at that time, of the AFSC 316X1L specialty. The newly acquired specialty necessitated new training programs in electronics and small missiles. According to the functional area managers, the conversion enhanced the image and added prestige to the career field which was previously considered to be one involving only menial labor. In February 1980 new Specialty Training Standards promised new training and equipment. Publicity was good which probably had a positive effect on Pride.

Research Question #20. *46XXX--Munitions and Weapons Maintenance. Why did Need for Enrichment Index (805) rise to a statistically significant peak in 4QCY80 when most other factors were decreasing?* Functional managers suggested that the Need for Enrichment Index was up during the fourth quarter of 1980 in the Munitions and Weapons Maintenance career field as a logical response to the lower values of many other factors. The Air Staff cited training, which had been promised but not delivered and for which no delivery date had been indicated, as the reason that the other factors were lower and Need for Enrichment Index was higher.

General Comments

The Air Staff noted that in the third quarter of 1980 the whole maintenance career field was at a low ebb. "Retention bottomed [19]," pay was not comparable to the job, and the outlook given by management was not encouraging.

The Air Staff felt that the 11.7 percent pay raise coupled with a large increase in reenlistment bonus money prevailed to drive up many factors in the fourth quarter of 1980. As reported previously, it is the belief of the Air Staff that favorable pay increases have the overriding effect of increasing many factors which would otherwise be lower.

All answers and comments reported in this chapter were perceptions of the Air Staff as expressed in the discussion meeting on November 4, 1981. No attempt was made to verify the accuracy of any of the statements made, and they are not to be considered official statements of Air Force policy.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

Conclusions

The research objectives were accomplished by analyzing the data using visual and statistical procedures (as described in the methodology) to identify significant variations in the data, and to then formulate a set of research questions which were presented to the Air Staff for answers and explanation. The questions are found in "Results of Research," and the answers are found in "Discussion With Air Staff." Presented in this chapter is a brief application of organizational theory in analyzing some of the Air Staff discussion, followed by recommendations for further research.

Application of Organizational Theory

Organizational theory may be used to amplify the Air Staff explanation of some of the factor variations which were identified by research questions.

Pay and Job Satisfaction. In explaining many of the significant factor increases, the Air Staff referred to an "economic mindset [which] prevailed to drive many factors, related and nonrelated, to increase [19]." As

discussed in the literature review, there exist many theories with differing explanations, and it is important to use the one which best fits the situation. In this case, the Valence-Satisfaction Theory seems to apply best in explaining the Air Staff perceptions of the effect of pay increases, announcements of bonuses, etc., on increasing factor values.

Both the Discrepancy Theory and the Equity-Inequity Theory also offer plausible explanations of the behavior observed. This literature review did not address the working of an "economic mindset" which would drive up unrelated factors; however, more than one functional area manager agreed to its existence. The managers also agreed that the positive effect is short-lived and in many cases seems to have a half-life of about thirty days.

Promises and Satisfaction. Several of the research questions such as questions three and thirteen demonstrate factor decreases which were caused by failure of management to follow through with promises. These decreases are explained by the Discrepancy Theory.

A logical application of organizational theory would be to apply appropriate theories to modify the behavior in a particular organization by taking actions to reduce or eliminate the causes of undesirable factor variations, and to promote or enhance desirable factor variations.

Factor Variations and Retention. The functional area managers of the Missile Electronics Maintenance career field observed that the general trend of many factors followed that of retention over the same time frame. Many factors increased significantly in the third quarter of 1979 and, during that period, retention was at its highest. Many of the same factors were significantly low during the first quarter of 1981 at a time when retention was at its lowest.

Recommendations for Further Research

The research completed in this study processed only a very small portion of the organizational information available from the LMDC data base. The same data should be analyzed to identify statistically significant factor variations common to several AFSCs in a particular quarter. The identification of significant trends would also be valuable information for functional managers.

An interesting relationship was proposed by the Air Staff in the "economic mindset" which has the effect of increasing factors not directly related to pay. A study should be conducted within the maintenance career field to determine the relationships between pay and job satisfaction, pay and retention, and pay and performance, and the actual influence of this "economic mindset."

AD-A111 372 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL--ETC F/G 5/9
A DESCRIPTIVE ANALYSIS OF SELECTED AFFECTIVE MEASURES IN THE MA--ETC(U)
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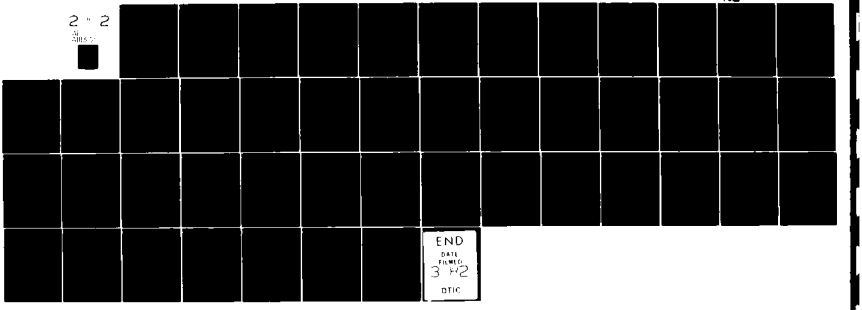
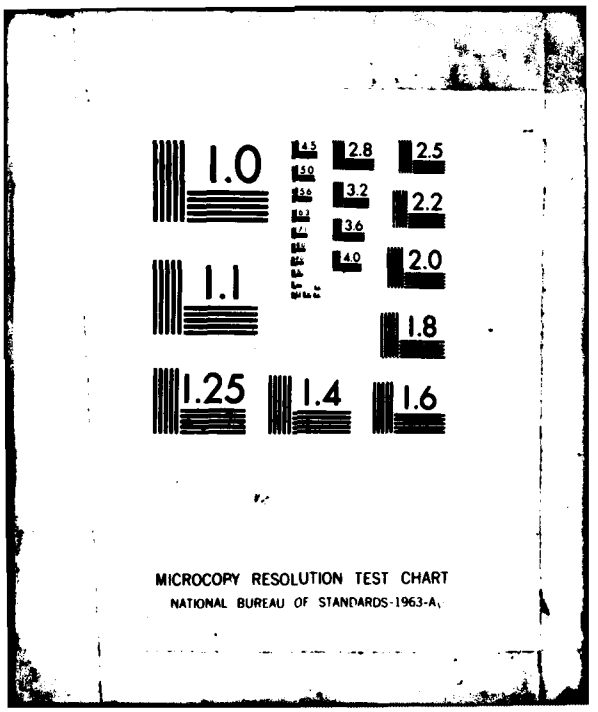
UNCLASSIFIED AFIT-LSSR-101-81 NL

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Finally, further research should be conducted to determine the relationships between specific factor variations and retention.

APPENDICES

APPENDIX A

ORGANIZATIONAL ASSESSMENT PACKAGE

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, The Air Force Privacy Act Program, the following information about this survey is provided:

a. Authority: 10 U.S.C., 8012, Secretary of the Air Force: Powers and Duties, Delegation by Compensation E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.

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

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

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

(PLEASE DO NOT TEAR, MARK ON, OR OTHERWISE DAMAGE THIS BOOKLET)

EXPIRATION DATE:

SCN 80-23

GENERAL INFORMATION

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

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

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

KEY WORDS

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

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

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

-- Organization: Your directorate/division/branch/section, etc.

INSTRUCTIONS

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

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

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

--Make heavy black marks that fill the spaces.

--Erase cleanly any responses you wish to change.

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

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

-Do not make any markings on the survey booklet.

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

Using the scale below, evaluate the sample statement.

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

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

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

Sample Response:

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

BACKGROUND INFORMATION

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

1. Total years in the Air Force:

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

2. Total months in present career field:

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

3. Total months at this station:

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

4. Total months in present position:

    1. Less than 1 month.
    2. More than 1 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.

5. Your Ethnic Group is:

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

6. Your highest education 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

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 Adademy (NCO Phase 4)
4. Senior NCO Adademy (NCO Phase 5)
5. Squadron Officer School
6. Intermediate Service School (i.e., ACSC, AFSC)
7. Senior Service School (i.e., AWC, ICAF, NWC)

8. How many people do your directly supervise?

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

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

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

10 Does your supervisor actually write your performance reports?

1. yes
2. no
3. not sure

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

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

12. What is your usual work schedule?

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

13. How often does your supervisor hold group meetngs?

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

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

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

15. What is your aeronautical rating and current status?

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

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

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

JOB INVENTORY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

JOB DESIRES

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

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

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

51. Opportunities to have independence in my work.

52. A job that is meaningful.

53. The opportunity for personal growth in my job.

54. Opportunities in my work to use my skills.

55. Opportunities to perform a variety of tasks.

56. A job which tasks are repetitive.

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

SUPERVISION

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

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

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

58. My supervisor is a good planner.

59. My supervisor sets high performance standards.

60. My supervisor encourages teamwork.

61. My supervisor represents the group at all times.

62. My supervisor establishes good work procedures.

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

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

65. My supervisor performs well under pressure.

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

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

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

69. My supervisor helps me set specific goals.

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

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

72. My supervisor always helps me improve my performance.

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

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

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

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

WORK GROUP PRODUCTIVITY

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

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

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

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

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

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

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

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

ORGANIZATION CLIMATE

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

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

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

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

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

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

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

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

86. My complaints are aired satisfactorily.

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

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

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

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

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

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

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

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

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

96. My organization has clear-cut goals.

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

98. My organization rewards individuals based on performance.

99. The goals of my organization are reasonable.

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

JOB RELATED ISSUES

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

1. Extremely dissatisfied
2. Moderately dissatisfied
3. Slighly dissatisfied
4. Neither satisfied nor dissatisfied
6. Slightly satisfied
6. Moderately satisfied
7. Extremely satisfied

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

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

102. Co-Worker 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.

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

105. On-the-Job Training (OJT)
The OJT instructional methods and instructor's competence.

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

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

107. Job Security

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

109. My Job as a Whole

APPENDIX B

ORGANIZATIONAL ASSESSMENT PACKAGE OUTPUT

The organizational Assessment Package (OAP) was developed for use by the Air Force Leadership and Management Development Center (LMDC), Maxwell AFB, Alabama. The LMDC mission includes (a) providing management consultation services to Air Force commanders, (b) providing leadership and management training to Air Force personnel in their work environment, and (c) performing research in support of (a) and (b). The consultative role involves organizational problem area identification and recommendations for resolving problems identified.

The OAP was designed to support the mission objectives of LMCD. First, the OAP provides a means of identifying existing strengths and weaknesses within organizational work groups and aggregated work groups, such as directorates. Second, research results can be fed back into Professional Military Education curricula; other leadership and management training courses; and when action is required, to Air Staff and functional offices of primary responsibility. Third, the OAP data base established can be used for research to strengthen the overall Air Force organizational effectiveness program.

EXTERNALLY CODED DESCRIPTORS

Batch Number

Julian Date of Survey

Major Air Command

Base Code

Consultation Method

Consultant Code

Survey Version

FACTORS

Survey Version: OAP 14 Feb 79

FACTOR: DEMOGRAPHIC (NOT A STATISTICAL FACTOR)

SECTION A

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

SECTION B

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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 is still in the data base.

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
009	6	Your highest education level obtainted 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
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

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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 2. Occasionally 3. Monthly 4. Weekly 5. Daily 6. Continuously
017	14	How often are group meetings used to solve problems and establish goals? 1. Never 2. Occasionally 3. About half the time 4. All of the time
018	15	What is your aeronautical rating and current status? 1. Nonrated, not on aircrew 2. Nonrated, now on aircrew 3. Rates, in crew/operations job 4. Rated, in support job

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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

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

FACTOR 800: SKILL VARIETY

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 IDENTIFY

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

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 803 NOT USED)

FACTOR 804: JOB FEEDBACK

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

FACTOR 805: WORK SUPPORT

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 806: NEED FOR ENRICHMENT INDEX (JOB DESIRES)

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 807: JOB MOTIVATION INDEX

Index is computed using the following factors:

800	Skill variety
801	Task identify
802	Task significance
805	Performance barriers/blockages
813	Task Autonomy
804	Job Feedback

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

FACTOR 808: OJI TOTAL SCORE

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

Index is computed using the following factors:

800	Skill variety
801	Task Identity
802	Task Significance
805	Performance Barriers/Blockages
813	Task Autonomy
804	Work Repetition

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

FACTOR 810: JOB PERFORMANCE GOALS

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 811: PRIDE

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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 812: TASK CHARACTERISTICS

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?

FACTOR 813: TASK AUTONOMY

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

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

FACTOR 815 (NOT USED)

FACTOR 816: DESIRED REPETITIVE EASY TASKS

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

FACTOR: JOB INFLUENCES (NOT A STATISTICAL FACTOR)

VARIABLE NUMBER	STATEMENT NUMBER	STATEMENT
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?

FACTOR 817: ADVANCEMENT/RECOGNITION

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 818: MANAGEMENT - SUPERVISION (A)

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

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

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

FACTOR 819: SUPERVISORY COMMUNICATIONS CLIMATE

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

FACTOR 820: ORGANIZATIONAL COMMUNICATIONS CLIMATE

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

FACTOR 821: WORK GROUP EFFECTIVENESS

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

FACTOR: WORK INTERFERENCES (NOT A STATISTICAL FACTOR)

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 822: JOB RELATED SATISFACTION

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 823: JOB RELATED TRAINING

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 824: GENERAL ORGANIZATIONAL CLIMATE

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.

FACTOR 825: MOTIVATION POTENTIAL SCORE

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

Value range will be from 1 to 343.

APPENDIX C

AIR FORCE SPECIALTY CODE CAREER FIELD DESCRIPTIONS (20)

30XXX Airman Communications-Electronics Systems--encompasses the functions of installation, modification, maintenance, repair, and overhaul of all airborne and ground electronics equipment excluding components peculiar to the Airman Electronic Maintenance Career Field, the Airman Avionics Systems Career Field, or the Airman Training Devices Career Field.

31XXX Airman Missile Electronic Maintenance--encompasses assembly, installation, maintenance, checkout, repair, and modification of missile and Remotely Piloted Vehicle (RPV) guidance, control, launch, test equipment, instrumentation systems, and related missile and RPV subsystems.

32XXX Airman Avionics Systems--"includes the installation, maintenance, calibration, and repair of bomb navigation, fire control, weapon control, defensive fire control, automatic flight control, avionics instrument systems, and avionics aerospace ground equipment; airborne communications, navigation, early warning radar, electronic warfare, inertial and radar navigation, and avionic sensor system equipment; and avionics peculiar support equipment. Included also is precision measurement equipment maintenance, modification, calibration, and certification."

34XXX Airman Training Devices--includes the installation, maintenance, repair, modification, and operation of most Air Force trainers, such as instrument trainers, and cockpit procedure trainers.

39XXX Maintenance Management Systems--"includes the planning and scheduling of aircraft, missiles, and associated ground equipment; the operation and maintenance of the Maintenance Management Information and Control System; and the collection, analysis and presentation of maintenance data and exception time counting in maintenance organizations. Such organizations include aircraft, missile, avionics, communications-electronics, and munitions maintenance organizations."

40XXX Airman Intricate Equipment Maintenance--"encompasses the functions and techniques involved in the installation, assembly, repair, overhaul, and modification of photographic equipment."

42XXX Airman Aircraft Systems Maintenance--"includes the skills functions, and techniques employed in the maintenance of aircraft accessory systems, propulsion systems, fabrication of metal and fabric materials used in aircraft structural repair, and the inspection and preservation of aircraft parts and materials."

43XXX Airman Aircraft Maintenance--"encompasses the mechanical functions of the maintenance, repair, and modification of heliocopters, turboprop aircraft, reciprocating aircraft, and jet aircraft."

46XXX Airman Munitions and Weapons Maintenance--"includes assembly, maintenance, storage, delivery, and loading of nonnuclear munitions and solid propellants; and the handling and aircraft loading of nuclear munitions and guided aircraft missiles and rockets. It includes the installation, maintenance, and repair of aircraft munitions release and monitor systems, bomb racks, shackles, aircraft machine guns and cannons; and assembly of mechanical components of guided aircraft missiles and rockets."

APPENDIX D

DISTRIBUTION OF MAJCOMs SURVEYED IN EACH QUARTER

Second Quarter 1979

Air Training Command
Strategic Air Command
Tactical Air Command
Air National Guard

Third Quarter 1979

Air Training Command
Strategic Air Command
Others (Special Commands)

Fourth Quarter 1979

Air Force Systems Command
Air Training Command
Strategic Air Command
Air National Guard
Others (Special Commands)

First Quarter 1980

Air Training Command
United States Air Force in Europe
Military Airlift Command
Air National Guard
Others (Special Commands)

Second Quarter 1980

Air Force Systems Command
Air Training Command
Tactical Air Command

Third Quarter 1980

Air Force Systems Command
Strategic Air Command
Tactical Air Command
Military Airlift Command

Fourth Quarter 1980

Air Force Systems Command
Air Training Command
Others (Special Commands)

First Quarter 1981

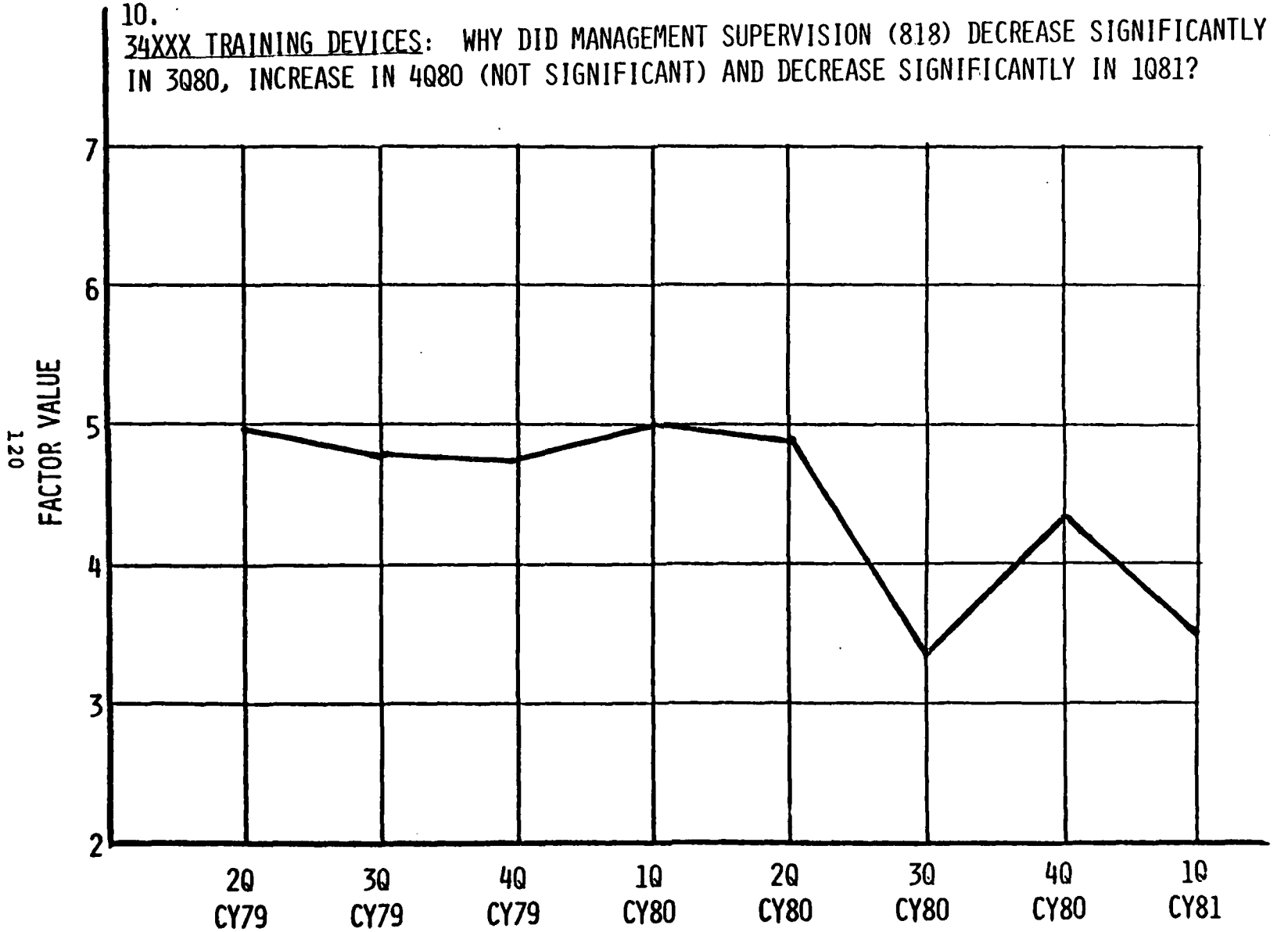
United States Air Force in Europe
Air National Guard
Others (Special Commands)

APPENDIX E

EXAMPLE OF VIEWGRAPH SLIDE PRESENTED IN AIR STAFF BRIEFING

10.

34XXX TRAINING DEVICES: WHY DID MANAGEMENT SUPERVISION (818) DECREASE SIGNIFICANTLY IN 3Q80, INCREASE IN 4Q80 (NOT SIGNIFICANT) AND DECREASE SIGNIFICANTLY IN 1Q81?



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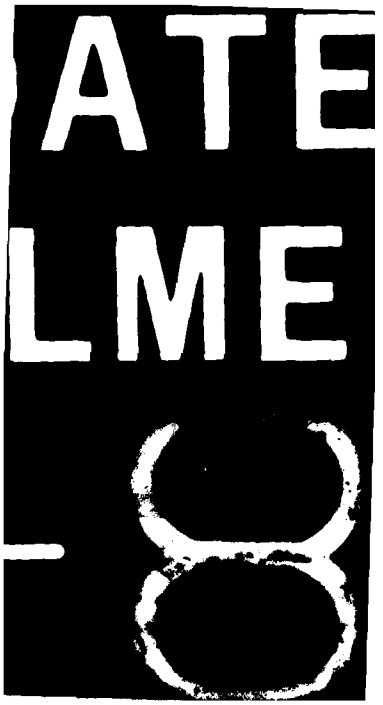
BIOGRAPHICAL SKETCH OF THE AUTHOR

Captain Joe Thompson Horne was born in Sante Fe, New Mexico, October 12, 1950. Upon graduation from high school there, he attended the United States Air Force Academy where he earned a Bachelor of Science degree in Civil Engineering, graduating in 1972.

After completing Navigation Training in July, 1974, Captain Horne served as a C-130 navigator at Pope Air Force Base, North Carolina and Rhein Main Air Base, Germany.

From Germany, Captain Horne was assigned to the Air Force Institute of Technology where he earned a Master of Science Degree in Engineering Management. His follow-on assignment is to the 92nd Civil Engineer Squadron at Fairchild Air Force Base, Washington.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