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# AIR COMMAND AND STAFF COLLEGE

## STUDENT REPORT

JOB ATTITUDES OF USAF PILOTS AND  
NAVIGATORS

MAJOR PETER S. MARCHEWKA

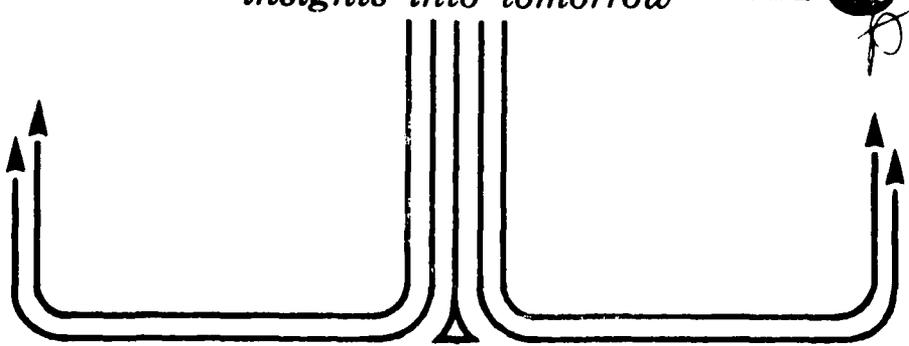
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**TITLE** JOB ATTITUDES OF USAF PILOTS AND NAVIGATORS

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

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<p>➤ A continuing problem in the Air Force today is the retention of experienced pilots and navigators (rated officers). Measuring job attitudes of USAF rated officers can be useful in determining possible factors affecting their retention. This study employed the Organizational Assessment Package (OAP) and data from the Air Force's Leadership and Management Development Center (LMDC) to compare and explain significant attitudinal differences among pilots, navigators, and non-rated officers. A one-way analysis of variance (ANOVA) with the Newman/Keuls follow-up procedure was used to analyze the data and the results are presented in statistical tables. The study concludes that both pilots and navigators are experiencing less satisfaction in their jobs than are non-rated officers. Recommendations are proposed to reverse this trend and include increasing incentive pay, as well as providing more opportunities for advancement and recognition in the rated officer career field. ←</p>			
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## PREFACE

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This research was conducted with the help of researchers and staff from the Directorate of Research and Analysis, Leadership and Management Development Center (LMDC/AN) at Maxwell Air Force Base, Alabama. Since the consulting and research functions of LMDC are being phased out by October of this year, this study was undertaken to help preserve a small part of a rather large and valuable data base of survey results from LMDC's consulting program.

The survey instrument used, the Organizational Assessment Package (OAP), was developed jointly by LMDC and the Air Force Human Resources Laboratory (AFHRL) at Brooks Air Force Base, Texas. The computer analyses used in this research were conducted by the Systems Division of LMDC. Since this study will be retained by LMDC as a source of management information, the format was designed primarily for that purpose and may vary somewhat from the Air Command and Staff College's research guidance.

Special thanks go to my advisor, Captain Thomas M. McFall, Chief of Systems Division, and Major Mickey R. Dansby, Director of Research and Analysis, for their valuable help and assistance in making this research possible.

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## ABOUT THE AUTHOR

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# TABLE OF CONTENTS

Preface . . . . .	iii
About the Author . . . . .	iv
List of Illustrations . . . . .	vi
Executive Summary . . . . .	vii
 CHAPTER ONE--INTRODUCTION . . . . .	 1
 CHAPTER TWO--LITERATURE REVIEW . . . . .	 7
 CHAPTER THREE--METHOD	
Instrumentation . . . . .	13
Data Collection . . . . .	15
Subjects . . . . .	17
Procedures . . . . .	18
 CHAPTER FOUR--RESULTS	
Analysis of Demographic Information . . . . .	21
Attitudinal Comparisons Among Pilots, Navigators and Non-Rated Officers . . . . .	22
 CHAPTER FIVE--DISCUSSION . . . . .	 27
 CHAPTER SIX--CONCLUSIONS AND RECOMMENDATIONS	
Summary . . . . .	33
Conclusions . . . . .	34
Recommendations . . . . .	35
 REFERENCES . . . . .	 37
 APPENDICES:	
Appendix A--Demographic Information . . . . .	41
Appendix B--Attitudinal Comparisons Among Pilots, Navigators, and Non- Rated Officers . . . . .	53
Appendix C--Organizational Assessment Package Survey: Factors and Variables. . . . .	59

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## LIST OF ILLUSTRATIONS

TABLE 1--Summary of Significant Differences: Work Itself . . . . .	23
TABLE 2--Summary of Significant Differences: Job Enrichment . . . . .	24
TABLE 3--Summary of Significant Differences: Work Group Output . . . . .	26
TABLE A-1--Number of Respondents by Study Group . . . . .	43
TABLE A-2--Sex by Study Group . . . . .	43
TABLE A-3--Age by Study Group . . . . .	43
TABLE A-4--Time in Air Force . . . . .	44
TABLE A-5--Months in Present Career Field . . . . .	44
TABLE A-6--Months at Present Duty Station . . . . .	45
TABLE A-7--Months in Present Position . . . . .	45
TABLE A-8--Ethnic Group . . . . .	46
TABLE A-9--Marital Status . . . . .	46
TABLE A-10--Spouse Status: Pilots . . . . .	47
TABLE A-11--Spouse Status: Navigators . . . . .	47
TABLE A-12--Spouse Status: Non-Rated . . . . .	47
TABLE A-13--Education Level . . . . .	48
TABLE A-14--Professional Military Education . . . . .	48
TABLE A-15--Number People Directly Supervised . . . . .	49
TABLE A-16--Number People for Whom Respondent Writes APR/OER/Appraisal . . . . .	49
TABLE A-17--Supervisor Writes Respondent's OER/Appraisal . . . . .	50
TABLE A-18--Work Schedule . . . . .	50
TABLE A-19--Supervisor Holds Group Meetings . . . . .	51
TABLE A-20--Supervisor Holds Group Meetings to Solve Problems . . . . .	51
TABLE A-21--Aeronautical Rating and Current Status . . . . .	52
TABLE A-22--Career Intent . . . . .	52
TABLE B-1--Comparison of OAP Factor Scores Among Pilots, Navigators, and Non-Rated Officers . . . . .	55

## EXECUTIVE SUMMARY



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REPORT NUMBER

86-1610

AUTHOR(S)

MAJOR PETER S. MARCHEWKA, USAF

TITLE

JOB ATTITUDES OF USAF PILOTS AND NAVIGATORS

I. Purpose: To investigate significant differences in the job attitudes of Air Force pilots, navigators, and non-rated officers and to propose recommendations for leaders and functional managers in the pilot and navigator career fields.

II. Background: A continuing problem in the Air Force today is the retention of experienced pilots and navigators. The rapid expansion of commercial air service, as well as the anticipation of a large number of commercial pilots reaching retirement age, has made 1985 a record year for civilian flight crew hiring. Ex-military pilots continue to be the airlines' most preferred resource and this trend, along with the exodus of experienced navigators, has Air Force officials concerned. The Air Force needs to retain highly qualified and experienced people in an age when training costs are becoming insurmountable due to our advanced and highly sophisticated weapon systems. One way to analyze this problem and attempt to determine why our rated officers are leaving the Air Force is through a job attitude survey. In 1978 the Leadership and Management Development Center (LMDC) at Maxwell AFB, AL, together with the Air Force Human Resources Laboratory (AFHRL) at Brooks AFB, TX, developed the Organizational Assessment Package (OAP). The OAP employs such a survey and, together with the cumulative data base at LMDC, serves as a basis for the present research.

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III. Procedures and Results: The initial step in determining whether attitudinal differences exist among pilots, navigators, and non-rated officers was to review past OAP results and organizational behavior literature to determine what previous researchers had learned about work attitudes of pilots and navigators. Significant factors contributing to turnover of Air Force pilots and navigators in previous studies included assignment policies, pay and benefits, work schedule and time off, additional duties, as well as the opportunity for civilian employment. One additional finding of previous research which was interesting was that the perception of job satisfaction for non-rated officers was significantly higher than for rated officers. The next step in the present research was to make statistical comparisons in analyzing responses of over 12,600 officers who had taken the OAP survey between 1 October 1981 and 16 September 1985. Analyses of their responses were made in two separate comparisons. The first comparison, "Analysis of Demographic Information," further characterized the three sample groups: pilots, navigators, and non-rated officers. The second comparison, "Attitudinal Comparison," compared job attitudes of the three study groups in four organizational subareas: the work itself, job enrichment, the work group process, and the work group output. Demographic analyses were conducted using the Statistical Package for the Social Sciences (SPSS<sup>X</sup>) procedure CROSSTABS. Attitudinal analyses were conducted with one-way analysis of variance (ANOVA) using an alpha = .05 significance level with the Newman/Keuls follow-up procedure to determine whether pilots and navigators differ from one another or from non-rated officers at the 95% confidence level. While the results of these analyses did not produce any real surprises, they did indicate that significant attitudinal differences exist among the three study groups in three of the four organizational subareas on the OAP: the work itself, job enrichment, and the work group output. As hypothesized, the factor of Job Related Satisfaction was perceived as significantly higher by the non-rated officers than by the rated group. Among the rated officers, lowest perceptions of Job Related Satisfaction were among the navigators. The finding that pilots reported lower Job Related Satisfaction than the non-rated officers and yet reported a higher degree of Pride in their work seemed somewhat ambiguous.

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### IV. Conclusions:

1. Both pilots and navigators are experiencing less satisfaction with factors surrounding their jobs than are non-rated officers in the Air Force.

2. Navigators in the Air Force have a less positive view of the importance of their jobs in comparison to pilots and non-rated officers probably because their jobs are diminishing in importance due to technology.

3. Increasing flight pay for rated officers will not necessarily lead to increased job satisfaction, but will probably help solve rated officer retention problems.

V. Recommendations: While additional research should be conducted into analyzing what variables or particular factors of job satisfaction have the most impact upon pilots' and navigators' attitudes, the following recommendations were made in light of the present research:

1. Allow rated officers who desire to actively fly throughout their entire careers equal opportunities for promotion and recognition.

2. Increase the opportunities for navigators to gain experience outside the navigator career field into areas where long-range career progression potential is greater.

3. Increase flight pay for rated officers commensurate with their responsibilities and duties in the cockpit in order to effectively compete with and offset civilian recruitment efforts.

## Chapter One

### INTRODUCTION

Although for the first time in almost a decade the Air Force has more rated officers than it has cockpit requirements ("Flier Surplus," 1985), the retention of experienced pilots and navigators continues to be a major challenge facing the Air Force. In 1980, the Chief of Staff, United States Air Force, General Lew Allen, Jr., identified the problem when he said: "retaining quality people has never been more critical for us. Preserving experience levels is absolutely essential if we are to maintain an adequate state of readiness" (1980, p. 49). He stated earlier, "the exodus of young pilots and navigators has affected every aspect of our force planning. Their departure will be felt well into the future" (Air Force Policy Letter for Commanders, 1979). Concerns like those expressed by General Allen have led Air Force officials to investigate a number of factors influencing retention (Bonnell & Hendrick, 1981; Cooper, 1982; Finneran, 1980). The present paper contributes to this body of research by exploring one crucial set of factors influencing retention--job attitudes. Before discussing job attitudes, however, perhaps we should review recent thinking on the pilot/navigator retention issue.

In an attempt to curb the attrition rate of pilots and navigators, Tidal McCoy, Assistant Secretary to the Air Force for Manpower, Reserve Affairs and Installations, says the Air Force plans to ask Congress to increase officer flight pay in FY 1987 (Ginovsky, 1985). This is in direct response to the attractive alternatives commercial airlines are offering Air Force pilots. The airline industry has increased pilot hiring dramatically in 1984 and 1985. This trend, coupled with the perception of some members that military career benefits will continue to erode, has Air Force officials concerned that more and more pilots will decide to leave the service.

One could draw a comparison between the situation today and the period just before 1978. In that year of airline deregulation and force reduction, pilot retention rates dropped to all-time lows, costing the service billions of training dollars and immeasurable losses of combat pilot experience. Air Force officials estimate that it costs about \$1 million to train a pilot. Looking at it strictly from an economic standpoint (disregarding the vast amount of corporate knowledge lost which cannot be measured in dollars and cents), the loss of 1000 pilots means the loss of a billion dollars.

Regardless of why pilots and navigators leave the Air Force, the basic point remains: As long as the Air Force's mission is to fly and fight, and as long as aircraft continue to be used as vehicles to support national policy and provide

national defense, the Air Force will need highly trained and qualified pilots and navigators to man those aircraft.

Dees and Jokerst (1985) propose that in order to halt the present exodus of rated officers, Air Force leadership must be willing to admit that people are their most valuable asset. The attitude that "if a person isn't happy with his job then we don't need him," is not realistic or effective in today's Air Force. Instead, Air Force leadership must be willing to identify problem areas and attempt to alleviate their people's unhappiness. The Air Force needs highly qualified people and it's just too costly to blindly let them go.

One method Air Force officials have used to determine where "people problems" lie is through attitude surveys. Measuring the attitudes of United States Air Force rated personnel can be crucial in determining factors or possible contributors affecting their retention. The Organizational Assessment Package (OAP), administered by the Air Force's Leadership and Management Development Center (LMDC) at Maxwell AFB, Alabama, has proven to be one valuable source of attitudinal data. The OAP measures the member's attitudes on a number of relevant job and retention dimensions. The present paper employs OAP data collected by LMDC to explore the attitudes of rated officers and compare attitudes of pilots and navigators with attitudes of non-rated officers. This study pursues four goals:

1. To conduct a review of current background research and theory to determine what previous researchers have learned about the work attitudes of pilots and navigators, and to determine whether there are hypothesized or confirmed differences among pilots, navigators, and non-rated Air Force officers;

2. To compare demographic and attitudinal results on the OAP for pilots versus navigators versus officers in other Air Force career areas;

3. To analyze significant attitudinal differences among pilots, navigators, and non-rated officers in light of the results of the present research, other research, and peculiarities of pilots' and navigators' duties; and

4. To develop recommendations for leaders and functional managers in the pilot and navigator career fields.

These goals are addressed as follows: First, Chapter Two presents the results of the literature review and highlights those studies that are most significant. Next, Chapter Three shows the methodology used--the OAP, how the data were collected, and a description of the specific groups involved (i.e., pilots, navigators, and non-rated Air Force officers). Chapter Four compares the results on the OAP for the three groups of officers using one-way Analysis of Variance (ANOVA) with the Newman/Keuls follow-up procedure to determine whether pilots and navigators differ from one another or from non-rated officers at the 95% confidence level. Chapter Five presents a

discussion of the findings. Finally, Chapter Six lists conclusions and recommendations.

## Chapter Two

### LITERATURE REVIEW

Numerous studies and extensive research have been conducted in the area of organizational behavior, and in particular, on job attitudes of people who make up organizations. Hunsicker (1983, p. 2-54) states:

By understanding an organization's objectives, structure, and formal processes, you will have a basic idea of what the organization is like. Nevertheless, the picture is not complete until you consider the really dynamic aspect of organizations: people and their behavior.

This present research focuses on people and their behavior. Specifically, it focuses on the job attitudes of two particular groups of people (pilots and navigators) within a particular organization (the United States Air Force). Previous research and studies on human behavior in the organizational work environment have included everything from psychological approaches (Maier, 1965) to scientific management theories (Taylor, 1911). A good starting point in the study of job attitudes of Air Force pilots and navigators is a review of what previous studies have been done in this field.

In 1927, an intensive research program conducted by the Western Electric Company, Hawthorne Works, Chicago (Hawthorne

Study), clearly demonstrated the effects of job attitudes on production (Roethlisberger & Dickson, 1943). Initially attempting to investigate the effects of such factors as temperature, humidity, lighting, and length of workday on production output, the Hawthorne study changed emphasis to study how improving supervision can lead to more favorable work attitudes. The discovery that relationships between workers and their supervisors are more influential than the effects of environmental conditions on production output formed the basis for a new frame of reference in industry. The Hawthorne Study clearly showed that the job attitudes of workmen directly influence both individual performance and group effort.

Another important work relating job attitudes to job satisfaction is Herzberg's motivation-hygiene theory (Herzberg, Mausner & Snyderman, 1959). Based on interviews of two hundred engineers and accountants, Herzberg identified five factors as strong determinants of job satisfaction-- achievement, recognition, responsibility, advancement, and the work itself (the "motivators"). He also identified five factors which must be adequately dealt with primarily to prevent job dissatisfaction. These ("hygiene") factors were company policy and administration, supervision, salary, interpersonal relations, and working conditions. Herzberg et al. (1959) concluded that while both kinds of factors meet the needs of the employee, it is primarily the "motivators"

that produce the kind of job satisfaction and improvement in performance that industry is looking for.

While the Hawthorne and Herzberg studies looked at the relationship between job attitudes and job satisfaction in the general field of industry, several previous studies have been conducted by the Air Force that deal specifically with navigators' and pilots' attitudes. Cantrell & Hartman (1968) and Cantrell (1969) completed a series of studies on trends in attitudes and job satisfaction of aircrew members in the Military Airlift Command (MAC). These studies looked at both officers and airmen in one particular command and identified certain problem areas that contributed to lower retention. These problem areas included: hours flown each month, getting planned time off, additional duties, and low level of job satisfaction. As part of a worldwide, on-site investigation of accident trends, Dryden, Kirschner and Hartman (1970) did a similar study in conducting a survey on morale and job satisfaction in one component organization of MAC--the Aerospace Rescue and Recovery Service. They discovered similar trends in support of Cantrell's research.

While Cantrell's research focused on one particular command (MAC), the Air Force discovered in 1978 that the high loss rate of rated officers that MAC was experiencing was beginning to occur in other commands as well (Giles, 1980). Bonnell and Hendrick (1981) completed a study that looked at all commands, and focused particularly on the turnover rate

of pilots and navigators in the six-to-eleven year group. Significant factors contributing to turnover of pilots and navigators in this year group were assignment policies, satisfaction with supervisory style, and pay and benefits. Bonnell and Hendrick also noted that the opportunity for civilian employment was a significant determinant of turnover for pilots. Blackburn and Johnson (1978) had done earlier research on the turnover of young officers in the Air Force and had identified ten variables which were determining factors of turnover. These included such things as pay, age, tenure, promotion, peer group integration, job autonomy and responsibility, and task repetitiveness, to name a few. Gulick and Laakman (1980) attempted to confirm the thesis proposed by Blackburn and Johnson as it applied to Air Force pilots. They found that the assignment policies of the Air Force were the primary factors in encouraging pilots in the six-to-eleven year group to get out.

One final study worth mentioning is an Air Command and Staff College research report on job satisfaction as a function of time on station, time in present position, and aeronautical rating (Henggeler, 1981). Using OAP data, the results of this study indicated that the perceptions of job satisfaction were significantly higher for non-rated officers than for rated officers.

In reviewing the previous research that has been done in this field, the author believes this research study will

reinforce what Henggeler and previous researchers have found: job satisfaction for non-rated officers will be significantly higher than for rated officers due to differing attitudes and perceptions between the two groups. It is the purpose of this study to identify those job attitudes that are significantly different and to ascertain some logical reasons why they are different. The next chapter explains the methods used to obtain the data upon which this report is based.

## Chapter Three

### METHOD

An important aspect of any research is the method or means used to collect the data. The survey questionnaire is one means of collecting data and was used in this particular research study to measure the job attitudes of Air Force members. If the data are to be useful, however, the survey should be carefully designed and administered so that the results will be accurate and allow valid comparisons over time. The Organizational Assessment Package (OAP) employs such a survey and is the basis for the method used in this study. This chapter describes the survey instrument used, the data collection (how the survey was administered), the people or subjects involved in the research, and the procedures used to analyze the data.

### Instrumentation

The OAP survey was developed jointly by LMDC and the Air Force Human Resources Laboratory (AFHRL) at Brooks Air Force Base, Texas with three purposes in mind: (a) to provide management consultation to Air Force commanders, (b) to provide leadership and management training to Air Force personnel in their work environment, and (c) to conduct research on Air Force organizational issues utilizing the established data base.

The principal instrument of the OAP is a 109-item survey divided into seven categories: Background Information includes demographic information and questions about the respondent's current job; Job Inventory measures perceptions of job skills needed and used, the significance of the job, and job autonomy; Job Desires asks for characteristics that the respondent would like to see in the job; Supervision measures each subordinate's perceptions of the immediate supervisor's behavior; Work Group Productivity measures the respondent's perception of the quantity and quality of work accomplished by his or her group compared to other groups; Organizational Climate measures perceptions of vertical, horizontal, and lateral communications, as well as standards and rewards within the organization; Job Related Issues seeks responses on factors such as family attitudes toward the job, adequacy of training, and job security. Respondents reply to survey items using a 7-point scale, with "1" usually indicating strong disagreement or dissatisfaction with the question or statement, and "7" usually indicating a high level of agreement or satisfaction.

After two years of field tests, Hightower and Short (1982) reexamined and confirmed the validity of the OAP as a reliable data-gathering instrument. Furthermore, the validity of the OAP process has been confirmed by the business schools at Harvard University, Massachusetts Institute of Technology, and Boston

University (Rittenhouse & Wilkerson, 1982). A detailed description of the survey is contained in Appendix C.

#### Data Collection

All data for the present report were collected as an integral part of LMDC management consultation efforts. To initiate the entire OAP process, an Air Force unit commander must invite a team of LMDC consultants to visit the unit (normally a wing or base comprised of several thousand personnel). During their visit, the consulting team begins by collecting data from a number of sources. These include: examining organizational charts; administering open-ended questionnaires to supervisors in the organization; interviewing supervisors; reviewing objective work performance data of the organization such as Management Effectiveness Inspection (MEI), Operational Readiness Inspection (ORI), Maintenance Standardization and Evaluation Team (MSET) and Inspector General (IG) reports; and administering the OAP survey.

The OAP survey is administered to every available individual within each work group of the organization during normal duty hours. (A work group is a collection of employees working under a single supervisor.) The survey is given as a census of the organization to which LMDC has been invited. All military and civilian members of the organization are scheduled for the survey administration in group sessions. They are assured of the confidentiality of their individual responses, and purposes

of the data gathering are explained. Only personnel from LMDC handle completed surveys.

Upon completion of this initial data collection, the consultants return to LMDC to thoroughly analyze the data from all the sources. Six to eight weeks later, the consultants return to the client unit and provide specific feedback to the commander and supervisors at all organizational levels. Results are strictly confidential and individual feedback is given only to the supervisor concerned. If problem areas are identified, consultants and supervisors develop management action plans to resolve conflicts at the lowest level. Within nine months of this second visit, the LMDC team returns to the unit for a third time to readminister the OAP survey and interview supervisors with whom they initially formulated management action plans. This time the OAP is used as an evaluation instrument to determine the effectiveness of the management consultation process in that particular unit. After follow-up results are compared with data analyzed before the consultation process, a final report is submitted to the organizational commander.

The data collected from each OAP survey are stored in a cumulative data base at LMDC for future research. Computer support systems enable LMDC to index, store, and retrieve data about many aspects of leadership and management in the Air Force. Data for the present report, for example, include initial (pre-intervention) surveys administered between 1 October 1981

and 16 September 1985. Data may also be recalled by demographic information such as personnel category, pay grade, age, sex, Duty Air Force Specialty Code (DAFSC), Primary Air Force Specialty Code (PAFSC), major command, time in service, etc. Moreover, a unique coding system can combine the data by work group and correlate the same codes for similar work groups Air Force wide. This capability provides senior functional managers with data on issues in their areas of responsibility without identifying specific organizations.

#### Subjects

Since all Air Force pilots and navigators are officers, the subjects of this research are strictly commissioned officers in the United States Air Force. The "pilots" group is comprised of both rotary and fixed-wing pilots whose responses are included in the LMDC data base, numbering 2,514. This group includes both those pilots in actual flying positions (crew/operations jobs), and also those pilots in non-flying or support jobs. The same holds true for the "navigators" group. Responses from the OAP data base of 1,003 navigators are included in this study, regardless of whether they were operationally flying or in a support job at the time. The data base comparison group for this research is comprised of "non-rated" officers with responses on the OAP data base, numbering 9,107. In summary, the data are taken from OAP surveys completed by 12,624 officers

from 65 bases worldwide in nine major commands. For more detailed information on the subjects, see the demographic tables in Appendix A.

### Procedures

The OAP survey answer sheets completed by the respondents are computer processed, allowing for statistical comparisons in analyzing responses among pilots, navigators and non-rated officers. Analyses of the groups' responses were conducted in two separate comparisons. The first comparison, "Analysis of Demographic Information," is furnished to further characterize the three sample groups, not to suggest a reason for differences which might be found between the groups. The second comparison, "Comparison among Pilots, Navigators and the LMDC Data Base," compares job attitudes of pilots, navigators, and non-rated officers.

The number (N) presented throughout this study is the total number of valid responses in the OAP data base for the variable or key factor being examined. Statistical analyses were performed using recommended procedures contained in the Statistical Package for the Social Sciences (SPSS<sup>X</sup>) User's Guide (1983). Demographic analyses were conducted using the SPSS<sup>X</sup> procedure CROSSTABS. Additional analyses were conducted with one-way analysis of variance (ANOVA) using an alpha = .05 significance level with the Newman/Keuls follow-up procedure to determine whether pilots and navigators differ from one another

or from non-rated officers (data base group) at the 95% confidence level.

Comparisons were made in four organizational subareas: the work itself, job enrichment, the work group process, and the work group output. See Appendix C for the Factors and Variables from the OAP survey which comprise these areas. The next chapter presents the results of the demographic and attitudinal comparisons.

## Chapter Four

### RESULTS

#### Analysis of Demographic Information

Tables A-1 through A-22 provide detailed demographic information about the pilots, navigators, and non-rated officers who responded to the OAP survey and upon whose attitudes this present research is based. As previously mentioned, 12,624 Air Force officers completed OAP surveys, of which 2,514 are pilots and 1,003 are navigators. The non-rated officers in the OAP data base number 9,107. Eleven percent of the pilot and navigator respondents are filling rated support jobs rather than actively flying. Eighty-three percent of all respondents are white males and more than 77% are married. Over half of the respondents have 8 or more years in the Air Force and 79% have been in their career fields for 18 months or more. The education level of the respondents is fairly typical of the officer corps with 53% having bachelor's degrees, while more than 45% hold master's degrees or higher. The average age of the respondents is between 21 and 40 years old (83%) and over 73% indicate they will make, or will likely make, the Air Force a career. As far as their work schedule goes, 74% of non-rated

officers work days, while only 19% of pilots and 21% of navigators work day shifts.

Attitudinal Comparisons Among Pilots,  
Navigators and Non-Rated Officers

Table B-1 provides detailed comparisons among the three study groups in the four areas of organizational functioning. Results of the ANOVA indicate that significant attitudinal differences exist among pilots, navigators, and non-rated officers in three of the four organizational subareas: the work itself, job enrichment, and the work group output.

In the first subarea, the work itself, a summary of the significant differences is provided in Table 1. All three study groups differ significantly in four of the six factors that measure the work itself. These factors are: Job Performance Goals, Task Characteristics, Work Repetition, and Job Related Training. While pilots express more positive views than either the navigators or the non-rated officers in Job Performance Goals, Task Characteristics, and Job Related Training, navigators express a higher degree of Work Repetition in their jobs. In the factor of Task Autonomy, pilots and navigators do not differ significantly from each other in this factor, but both groups differ significantly from the data base and express less autonomy in their jobs than their non-rated counterparts. The only factor of the work itself where no two groups are significantly different at the alpha = .05 level is Desired Repetitive/Easy Tasks.

TABLE 1

## SUMMARY OF SIGNIFICANT DIFFERENCES: WORK ITSELF

FACTOR	GROUP	MEAN	SUBSET <sup>a</sup>
<u>Job Performance Goals</u>	NON-RATED	4.68	1
	NAVIGATORS	4.76	2
	PILOTS	4.88	3
<u>Task Characteristics</u>	NAVIGATORS	5.19	1
	NON-RATED	5.34	2
	PILOTS	5.41	3
<u>Task Autonomy</u>	NAVIGATORS	3.92	1
	PILOTS	3.99	1
	NON-RATED	4.78	2
<u>Work Repetition</u>	NON-RATED	4.21	1
	PILOTS	4.57	2
	NAVIGATORS	4.67	3
<u>Job Related Training</u>	NON-RATED	4.52	1
	NAVIGATORS	4.86	2
	PILOTS	5.19	3

<sup>a</sup>Groups not in the same subset are significantly different at the .05 level.

In the organizational subarea of job enrichment (Table 2), all three groups again differ significantly from one another in four of the six factors that measure job enrichment. Pilots express more positive views on Skill Variety and Task Identity, and non-rated officers express a higher Need for Enrichment and have an overall higher Job Motivation Index. A factor in which navigators express a less positive view in comparison to pilots

and non-rated officers is Task Significance, or the importance of their job. Pilots and non-rated officers do not differ significantly on this factor. There were no significant differences among the study groups on the factor of Job Feedback. Navigators have the lowest means on all six factors that measure the organizational subarea of job enrichment.

TABLE 2

SUMMARY OF SIGNIFICANT DIFFERENCES: JOB ENRICHMENT			
FACTOR	GROUP	MEAN	SUBSET <sup>a</sup>
<u>Skill Variety</u>	NAVIGATORS	5.20	1
	NON-RATED	5.40	2
	PILOTS	5.67	3
<u>Task Identity</u>	NAVIGATORS	5.13	1
	NON-RATED	5.21	2
	PILOTS	5.32	3
<u>Task Significance</u>	NAVIGATORS	5.56	1
	PILOTS	5.78	2
	NON-RATED	5.83	2
<u>Need for Enrichment</u>	NAVIGATORS	5.83	1
	PILOTS	5.99	2
	NON-RATED	6.15	3
Job Motivation Index	NAVIGATORS	103.92	1
	PILOTS	109.68	2
	NON-RATED	133.40	3

<sup>a</sup>Groups not in the same subset are significantly different at the .05 level.

In the organizational subarea of work group output, Table 3 provides a summary of the significant differences among the three groups. All three groups differ significantly from one another in two of the five factors that measure work group output: Pride and Job Related Satisfaction. While pilots express a greater feeling of Pride in their work than either navigators or non-rated officers, the non-rated group tends to have higher perceived Job Related Satisfaction compared to both pilots and navigators. These results are as this author predicted in his hypothesis in Chapter Two. In the factor of Advancement/Recognition, navigators' views are less positive and significantly different from both pilots' and non-rated officers' views. In both Work Group Effectiveness (Perceived Productivity) and General Organizational Climate, pilots differ significantly from both navigators and non-rated officers in that they express more positive views in these two factors.

In the subarea of the work group process, although in no factor are all three groups significantly different from one another, pilots stand out as significantly more positive than the other two groups in three of the four factors that measure leadership and the work group process. These factors are Management and Supervision, Supervisory Communications Climate, and Organizational Communications Climate. Navigators and non-rated officers are not significantly different in these three factors. The one factor in this subarea in which non-rated

officers stand out as being significantly different from the rated officers is Work Support. Pilots and navigators are not significantly different in this factor which measures the degree to which work performance is hindered by additional duties, inadequate tools and equipment, or inadequate work space.

TABLE 3

SUMMARY OF SIGNIFICANT DIFFERENCES: WORK GROUP OUTPUT

FACTOR	GROUP	MEAN	SUBSET <sup>a</sup>
Pride	NAVIGATORS	5.34	1
	NON-RATED	5.44	2
	PILOTS	5.69	3
Advancement/Recognition	NAVIGATORS	4.07	1
	PILOTS	4.56	2
	NON-RATED	4.64	2
Work Group Effectiveness (Perceived Productivity)	NON-RATED	5.75	1
	NAVIGATORS	5.77	1
	PILOTS	5.86	2
Job Related Satisfaction	NAVIGATORS	4.83	1
	PILOTS	5.24	2
	NON-RATED	5.46	3
General Organizational Climate	NAVIGATORS	5.13	1
	NON-RATED	5.17	1
	PILOTS	5.36	2

<sup>a</sup>Groups not in the same subset are significantly different at the .05 level.

Chapter Five presents a discussion of these results.

## Chapter Five

### DISCUSSION

The main purpose of this research was twofold: (a) to identify job attitudes that are significantly different among pilots, navigators, and non-rated officers in the United States Air Force; and (b) to analyze those attitudinal differences and make recommendations for leaders and functional managers in the rated officer career field.

Although the results of this study show statistically significant differences among the job attitudes of the three study groups involved, the degree of variation for most of the factors considered is relatively small. One possible reason for this can be found in analyzing the demographics of the respondents. It becomes readily apparent that we are studying a well-educated, predominantly male, relatively young group of people who, for the most part, are leaning toward making the Air Force a career. You may not see as large a variation in their attitudes, for example, as you would in a study which looked at the job attitudes of three different groups of people in a large corporation. Although all three groups of this study have specialized jobs within the Air Force, the common bond of taking a commissioning oath and serving in the defense of one's country instills certain

common attitudes about one's job. Be that as it may, what about those job attitudes that were found to be significantly different among pilots, navigators, and non-rated officers?

First of all, the results of this research are consistent with previous research in supporting the hypothesis that Job Related Satisfaction is generally perceived to be significantly higher by the non-rated officer force than by the rated officer force. These results support the research of Talbot (1979), Chiapusio (1980) and Henggeler (1981). To take these results one step further, however, and break down the perceptions of the rated officer force into pilots versus navigators, this study found that pilots generally have a more favorable perception of Job Related Satisfaction than navigators. To reinforce this finding, navigators also expressed the least positive views among all three study groups on the OAP factors of Pride in their work and Advancement/Recognition in their jobs. On the other hand, pilots expressed the most positive views of all three study groups on the factor of Pride and were a close second to the non-rated officers on the factor of Advancement/Recognition.

What is a possible reason for navigators expressing the least amount of Job Related Satisfaction of all three study groups? This author believes a clue to the answer to this question lies in the fact that navigators, as a whole, expressed the least positive views among all three study groups on all six

OAP factors that measure the organizational subarea of job enrichment. Job enrichment on the OAP measures the degree to which the job itself is interesting, meaningful, challenging, and responsible. In other words, navigators in this study don't see their jobs as being as interesting, meaningful, challenging, or responsible as those of pilots or non-rated officers. This can partially be explained by the fact that navigators' jobs are slowly being replaced by new technology in navigation equipment. For example, in MAC's C-141 strategic airlift mission, navigators are no longer primary crewmembers on transoceanic flights or on air-to-air refueling missions because of dual inertial navigation systems (INS) installed in the C-141. Although navigators still fly on airdrop missions, to put it bluntly, the INS has basically replaced the navigator on C-141 basic airland missions. Another possible reason that navigators express the least positive views concerning Job Related Satisfaction is that navigators have historically felt that they have taken a back seat to pilots--and in a sense they have. Not only in the aircraft do they feel they take a back seat, but in higher level command and staff positions as well. Gambrell (1973) presents a good case study in support of this argument. Only recently have navigators been given the opportunity for commanding operational flying organizations and filling higher level staff positions. As a result, the majority of navigators are probably not realizing the "motivator" factors that Herzberg referred to which ultimately lead to job satisfaction.

So, then, what about the other half of the rated officer force--the pilots? Even though pilots expressed more positive feelings of Pride in their work than the non-rated officers, why is their level of Job Related Satisfaction significantly lower than the non-rated officers? One possible reason, in this author's opinion, is that pilots are not experiencing enough Advancement/Recognition in their primary job of flying airplanes. Non-rated officers had the highest perception of Advancement/Recognition in their jobs. In other words, the pilots' perception of doing a good job (high sense of Pride in their work) does not necessarily equate with the perception of Advancement/Recognition for doing a good job in today's Air Force. Pilots are being primarily rewarded for doing a good job by the "hygiene" factor of flight pay which does not necessarily lead to job satisfaction, and which furthermore can't compete with the civilian airline industry. Pilots realize that to be competitive for higher level command and staff jobs in today's Air Force (i.e., more advancement and promotion opportunity), they have to get out of their primary job--that of flying. This perception might be different in a wartime environment where advancement and promotion opportunity for pilots would probably be greater.

Another possible reason that pilots have a lower level of Job Related Satisfaction than non-rated officers is something I've already alluded to--flight pay. Pilots see what the

airline industry is offering commercial pilots for doing basically the same job that they are doing in the Air Force. The difference in flight pay is significant enough that pilots will continue to leave the Air Force for the airlines. The year 1985 proved to be a record year for civilian flight crew hiring and ex-military pilots continued to be the preferred new hires by the airlines (Ginovsky, 1986). With the civilian airline industry being as competitive as it is today, incentive pay will probably be the primary means of rewards and recognition for good pilots in a peacetime environment.

Chapter Six will list conclusions and recommendations based upon this discussion and analysis of the results.

## Chapter Six

### CONCLUSIONS AND RECOMMENDATIONS

#### Summary

This research study looked at three groups of officers in the Air Force and measured their attitudes (by means of the OAP survey) on a number of relevant job and retention issues. Results of this research indicate that significant attitudinal differences exist among pilots, navigators, and non-rated officers in today's Air Force. All three study groups differ significantly from one another in three organizational subareas of the OAP: the work itself, job enrichment, and the work group output. As hypothesized, the factor of Job Related Satisfaction is generally assessed significantly higher by the non-rated officer force than by the rated officer force. Among the rated officers, lowest perceptions of Job Related Satisfaction were among the navigators. While the results did not produce any surprises, the finding that pilots reported lower Job Related Satisfaction than the non-rated officers and yet reported a higher degree of Pride in their work seemed to this researcher to be somewhat inconsistent.

## Conclusions

While additional research could be conducted into analyzing what variables or particular factors of Job Related Satisfaction have the most impact upon pilots' and navigators' attitudes, the common ones that we have heard before will probably emerge: additional duties, pay and benefits, work schedule and time off, and promotion and advancement opportunities. This author believes the key to understanding the attitudinal differences among pilots, navigators, and the non-rated officers in today's Air Force lies in understanding that a peacetime flying environment is quite different from a wartime flying environment in terms of job satisfaction. In a wartime environment, pilots and navigators would not have to seek the rated supplement or a career-broadening job in order to be competitive for promotion or to receive recognition for the job they're performing. With that in mind, the following conclusions were drawn from this research:

1. Both pilots and navigators are experiencing less satisfaction with factors surrounding their jobs than are non-rated officers in the Air Force.
2. Navigators in the Air Force have a less positive view of the importance of their jobs in comparison to pilots and non-rated officers, probably because their jobs are declining in importance due to technology.

3. Increasing flight pay for rated officers will not necessarily lead to increased job satisfaction, but will help solve rated officer retention problems.

#### Recommendations

This study supports previous research that rated officers are experiencing less Job Related Satisfaction than non-rated officers in today's Air Force. This perceived difference in Job Related Satisfaction will probably continue to contribute to the retention problem of experienced pilots and navigators. Air Force leadership should continue to work this problem in order to reverse this trend among our rated force.

With this in mind, the following recommendations are made in light of the present research:

1. Allow rated officers who desire to actively fly throughout their entire careers equal opportunities for promotion and recognition.
2. Increase the opportunities for navigators to gain experience outside the navigator career field into areas where long-range career progression potential is greater.
3. Increase flight pay for rated officers commensurate with their responsibilities and duties in the cockpit in order to effectively compete with and offset civilian recruitment efforts.

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## REFERENCES

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- Air Force Policy Letter for Commanders (AFRP 190-1). (1979, October 1). Washington, DC: U.S. Government Printing Office.
- Allen, L., Jr. (1980, October). A letter meant for you. Airman 24, p. 49.
- Blackburn, R. L., & Johnson, R. L. (1978). Turnover of junior officers. Master's thesis (LSSR 5-78B), Air Force Institute of Technology, Wright Patterson AFB, OH.
- Bonnell, R. A., & Hendrick, K. D. (1981). Factors influencing the turnover of rated United States Air Force officers with less than eleven years of service. Master's thesis (LSSR 33-81), Air Force Institute of Technology, Wright Patterson AFB, OH.
- Cantrell, G. K. (1969). Trends in aircrew attitudes and job satisfaction: A two year study (SAM-TR-69-17). Brooks AFB, TX: USAF School of Aerospace Medicine.
- Cantrell, G. K., & Hartman, B. O. (1968). Trends in aircrew attitudes and job satisfactions (SAM-TR-68-19). Brooks AFB, TX: USAF School of Aerospace Medicine.
- Chiapusio, R. D. (1980). The rated supplement: Motivator or millstone? A look at job satisfaction perceptions. (Report No. 0400-80). Maxwell AFB, AL: Air Command and Staff College.
- Cooper, M. V. (1982). The flying squadron commander's role in rated officer retention. (Report No. 82-0580). Maxwell AFB, AL: Air Command and Staff College.
- Dees, D. J., & Jokerst, R. P. (1985). Is pilot retention a problem. Airlift, 7(2), 1-4.
- Dryden, R. S., Kirschner, L. J., & Hartman, B. O. (1970). A third study of factors affecting aircrew morale (SAM-TR-70-55). Brooks AFB, TX: USAF School of Aerospace Medicine.

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## CONTINUED

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- Finneran, P. J., Jr. (1980). Challenge, the key to retention (Report No. 0740-80). Maxwell AFB, AL: Air Command and Staff College.
- Flier surplus makes 'supplement' attractive. (1985, February 25). Air Force Times, p. 16.
- Gambrell, C. E. (1973). The navigator career: A case for revitalization (Report No. 1020-73). Maxwell AFB, AL: Air Command and Staff College.
- Giles, R. T. (1980). How effective is the Air Force rated officer retention program? (Report No. WPO05-80). Maxwell AFB, AL: Air War College.
- Ginovsky, J. (1985, March 25). AF to ask '87 hike in officer flight pay. Air Force Times, p. 1.
- Ginovsky, J. (1986, January 20). 1985 record year for civil aircrew hiring. Air Force Times, p. 4.
- Gulick, C. E., & Laakman, H. E., Jr. (1980). Analysis of factors influencing the turnover of United States Air Force pilots in the six to eleven year group. Master's thesis (LSSR 4-80), Air Force Institute of Technology. Wright-Patterson AFB, OH.
- Henggeler, W. M. (1981). Job satisfaction as an interaction of time on station, time in present position, and aeronautical rating (Report No. 1155-81). Maxwell AFB, AL: Air Command and Staff College.
- Herzberg, F., Mauser, B., & Snyderman, B. B. (1959). The motivation to work. New York: Wiley.
- Hightower, J. M., & Short, L. O. (1982). Factor stability of the Organizational Assessment Package (LMDC-TR-82-1). Maxwell AFB, AL: Leadership and Management Development Center.

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## CONTINUED

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Hunsicker, F. R. (1983). Organization theory for leaders.  
In Concepts for Air Force leadership (pp. 2-51 to 2-56).  
Maxwell AFB, AL: Air University Press.

Maier, N. F. (1965). Psychology in industry. Boston, MA:  
Mifflin.

Rittenhouse, S. S., & Wilkerson, D. A. (1982). How management  
consultation is improving Air Force productivity. Defense  
Management Journal, 18(4), 9-13.

Roethlisberger, F. J., & Dickson, W. J. (1943). Management and  
the worker. Cambridge, MA: Harvard University Press.

SPSS<sup>X</sup> user's guide. (1983). New York: McGraw-Hill.

Talbot, T. R. (1979). Job satisfaction: Literature review  
and empirical test of a job facet satisfactions model  
(GSM/SM79S-14). Wright Patterson AFB, OH: Air Force  
Institute of Technology.

Taylor, F. W. (1911). Principles of scientific management.  
New York: Harper.

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APPENDIX

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Appendix A  
Demographic Information

41 / 42

TABLE A-1

## Number of Respondents by Study Group

Pilots	2,514 (19.9%)
Navigators	1,003 ( 7.9%)
Non-Rated	9,107 (72.2%)

TABLE A-2

## Sex by Study Group

	<u>Pilots (%)</u> <u>n = 2,514</u>	<u>Navigators (%)</u> <u>1,002</u>	<u>Non-Rated (%)</u> <u>9,076</u>
Male	99.5	99.3	82.9
Female	.5	.7	17.1

TABLE A-3

## Age by Study Group

	<u>Pilots (%)</u> <u>n = 2,514</u>	<u>Navigators (%)</u> <u>1,003</u>	<u>Non-Rated (%)</u> <u>9,107</u>
17 to 20 Yrs			
21 to 25 Yrs	16.0	8.3	11.5
26 to 30 Yrs	35.2	39.7	24.8
31 to 35 Yrs	20.6	27.5	23.9
36 to 40 Yrs	20.2	13.7	20.1
41 to 45 Yrs	6.6	7.8	12.6
46 to 50 Yrs	.9	2.3	4.3
>50 Yrs	.5	.8	2.8

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

Appendix A

TABLE A-4

Time in Air Force

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,513</u>	<u>1,002</u>	<u>9,088</u>
< 1 Yr	.1		4.5
1 to 2 Yrs	2.5	3.3	6.3
2 to 3 Yrs	10.5	7.9	6.8
3 to 4 Yrs	8.7	10.1	6.4
4 to 8 Yrs	27.1	25.2	19.9
8 to 12 Yrs	19.3	23.5	14.6
> 12 Yrs	31.8	30.0	41.5

TABLE A-5

Months in Present Career Field

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,495</u>	<u>987</u>	<u>9,053</u>
< 6 Mos	4.9	4.1	5.4
6 to 12 Mos	9.2	6.8	7.3
12 to 18 Mos	9.5	8.9	7.2
18 to 36 Mos	25.6	23.8	20.2
> 36 Mos	50.9	56.4	59.8

TABLE A-6

## Months At Present Duty Station

	<u>Pilots (%)</u> <u>n = 2,508</u>	<u>Navigators (%)</u> <u>995</u>	<u>Non-Rated (%)</u> <u>9,082</u>
< 6 Mos	10.8	14.4	14.6
6 to 12 Mos	16.1	13.1	17.0
12 to 18 Mos	15.9	13.9	16.8
18 to 36 Mos	37.7	36.5	35.5
> 36 Mos	19.5	22.2	16.1

TABLE A-7

## Months In Present Position

	<u>Pilots (%)</u> <u>n = 2,504</u>	<u>Navigators (%)</u> <u>998</u>	<u>Non-Rated (%)</u> <u>9,072</u>
< 6 Mos	31.2	25.9	25.3
6 to 12 Mos	29.2	22.6	23.6
12 to 18 Mos	16.8	16.5	17.2
18 to 36 Mos	18.0	24.9	26.5
> 36 Mos	4.8	10.0	7.4

Appendix A

Table A-8

Ethnic Group

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,502</u>	<u>994</u>	<u>9,064</u>
White	95.1	89.5	85.3
Hispanic	1.0	2.3	2.7
Black	1.0	3.0	7.5
American Indian	.8	1.0	.7
Asian	.5	1.9	1.7
Other	1.6	2.2	2.2

Table A-9

Marital Status

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,509</u>	<u>1,002</u>	<u>9,102</u>
Not Married	19.7	19.4	21.7
Married	79.8	79.2	76.5
Single Parent	.6	1.4	1.8

TABLE A-10

## Spouse Status: Pilots

	<u>Geographically Separated (%)</u> <u>n = 61</u>	<u>Not Geo. Separated (%)</u> <u>1,940</u>
Civilian Employed	57.4	35.0
Not Employed	21.3	61.0
Military Member	21.3	4.0

TABLE A-11

## Spouse Status: Navigators

	<u>Geographically Separated (%)</u> <u>n = 22</u>	<u>Not Geo. Separated (%)</u> <u>772</u>
Civilian Employed	72.7	29.7
Not Employed	22.7	64.2
Military Member	4.5	6.1

TABLE A-12

## Spouse Status: Non-Rated

	<u>Geographically Separated (%)</u> <u>n = 343</u>	<u>Not Geo. Separated (%)</u> <u>6,619</u>
Civilian Employed	58.3	34.5
Not Employed	19.5	55.1
Military Member	22.2	10.4

Appendix A

TABLE A-13

Educational Level

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,512</u>	<u>1,000</u>	<u>9,078</u>
HS Grad or GED		.1	.3
< 2 Yrs College		.3	.3
> 2 Yrs College	.2	.5	1.8
Bachelor's Degree	68.9	69.2	46.8
Master's Degree	30.8	29.6	39.7
Doctoral Degree	.1	.3	11.2

TABLE A-14

Professional Military Education

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,509</u>	<u>1,001</u>	<u>9,097</u>
None	32.6	29.7	35.4
Phase 1 or 2	.4	.5	1.3
Command Academy	.2	.2	1.6
Sr NCO Academy			1.4
Sq Officers School	29.2	31.3	25.5
Int Service School	29.9	29.0	20.9
Sr Service School	7.7	9.4	13.9

TABLE A-15

## Number People Directly Supervised

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,368</u>	912	8,594
None	50.5	69.1	35.6
1 Person	4.8	5.9	8.1
2 People	5.1	4.1	7.0
3 People	9.5	3.9	8.1
4 to 5 People	11.2	6.1	15.3
6 to 8 People	7.0	4.7	11.6
9 or > People	12.0	6.1	14.4

TABLE A-16

## Number People for Whom Respondent Writes APR/OER/Appraisal

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,506</u>	1,001	9,082
None	63.0	79.5	45.1
1 Person	4.7	5.7	10.9
2 People	4.7	3.1	8.1
3 People	6.8	2.0	7.8
4 to 5 People	10.3	4.8	12.3
6 to 8 People	6.4	3.4	9.6
9 or > People	4.2	1.5	6.1

TABLE A-17

## Supervisor Writes Respondent's OER/Appraisal

	<u>Pilots (%)</u> n = 2,479	<u>Navigators (%)</u> 989	<u>Non-Rated (%)</u> 8,967
Yes	82.4	77.4	76.4
No	13.1	15.7	14.2
Not Sure	4.6	7.0	9.4

TABLE A-18

## Work Schedule

	<u>Pilots (%)</u> n = 2,487	<u>Navigators (%)</u> 992	<u>Non-Rated (%)</u> 9,017
Day Shift	19.1	21.5	74.3
Swing Shift			.3
Mid Shift			.1
Rotating Shifts	5.0	4.1	4.8
Irregular Schedule	20.3	8.1	10.8
Frequent TDY/On-call	10.0	6.7	7.6
Crew Schedule	45.6	59.7	2.1

TABLE A-19

## Supervisor Holds Group Meetings

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,480</u>	988	9,004
Never	5.7	8.6	6.6
Occasionally	22.8	30.4	22.2
Monthly	16.5	16.1	13.1
Weekly	37.9	35.2	44.2
Daily	14.9	6.5	12.1
Continuously	2.3	3.2	1.9

TABLE A-20

## Supervisor Holds Group Meetings to Solve Problems

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,474</u>	987	8,944
Never	14.0	17.8	15.4
Occasionally	42.5	43.0	42.5
Half the Time	21.2	19.0	22.4
Always	22.4	20.2	19.7

Appendix A

TABLE A-21

Aeronautical Rating and Current Status

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,512</u>	<u>1,003</u>	<u>8,938</u>
Nonrated, not on aircrew	.3	.2	85.0
Nonrated, now on aircrew	.2	.2	3.2
Rated, on crew/ops job	90.6	84.4	2.9
Rated, in support job	9.0	15.2	8.8

TABLE A-22

Career Intent

	<u>Pilots (%)</u>	<u>Navigators (%)</u>	<u>Non-Rated (%)</u>
	<u>n = 2,502</u>	<u>999</u>	<u>9,053</u>
Retire 12 Mos	1.6	3.2	3.9
Career	45.0	45.2	53.4
Likely Career	29.1	28.8	19.9
Maybe Career	18.6	14.9	14.1
Likely Separate	4.2	4.8	5.3
Separate	1.5	3.0	3.3

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

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# APPENDIX

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Appendix B  
Attitudinal Comparisons Among Pilots, Navigators,  
and Non-Rated Officers

TABLE B-1  
 Comparison of OAP Factor Scores  
 Among Pilots, Navigators, and Non-Rated Officers

THE WORK ITSELF					
	<u>Mean</u>	<u>SD</u>	<u>Subset</u>	<u>df</u>	<u>F</u>
Job Performance Goals				2,12130	40.82***
Pilots	4.88	.88	3		
Navigators	4.76	.94	2		
Non-Rated	4.68	1.01	1		
Task Characteristics				2,12197	19.42***
Pilots	5.41	.88	3		
Navigators	5.19	.96	1		
Non-Rated	5.34	.96	2		
Task Autonomy				2,12226	477.32***
Pilots	3.99	1.30	1		
Navigators	3.92	1.34	1		
Non-Rated	4.78	1.30	2		
Work Repetition				2,12418	103.39***
Pilots	4.57	1.30	2		
Navigators	4.67	1.28	3		
Non-Rated	4.21	1.39	1		
Desired Repetitive/ Easy Tasks				2,12052	1.31
Pilots	2.46	1.00	1		
Navigators	2.53	1.03	1		
Non-Rated	2.47	1.06	1		
Job Related Training				2,9852	175.06***
Pilots	5.19	1.28	3		
Navigators	4.86	1.36	2		
Non-Rated	4.52	1.50	1		

Note: Groups not in the same subset are significantly different at the .05 level.

\*p < .05.    \*\*p < .01.    \*\*\*p < .001.

Appendix B

TABLE B-1 (continued)

JOB ENRICHMENT					
	<u>Mean</u>	<u>SD</u>	<u>Subset</u>	<u>df</u>	<u>F</u>
Skill Variety				2,12499	61.69***
Pilots	5.67	1.17	3		
Navigators	5.20	1.30	1		
Non-Rated	5.40	1.30	2		
Task Identity				2,12466	10.68***
Pilots	5.32	1.15	3		
Navigators	5.13	1.20	1		
Non-Rated	5.21	1.23	2		
Task Significance				2,12518	20.70***
Pilots	5.78	1.16	2		
Navigators	5.56	1.31	1		
Non-Rated	5.83	1.27	2		
Job Feedback				2,12486	2.95
Pilots	4.87	1.11	1		
Navigators	4.82	1.20	1		
Non-Rated	4.90	1.20	1		
Need for Enrichment				2,12207	83.06***
Pilots	5.99	.85	2		
Navigators	5.83	.97	1		
Non-Rated	6.15	.85	3		
Job Motivation Index				2,11414	168.50***
Pilots	109.68	58.15	2		
Navigators	103.92	59.19	1		
Non-Rated	133.40	69.14	3		

NOTE: Groups not in the same subset are significantly different at the .05 level.

\*p < .05. \*\*p < .01. \*\*\*p < .001.

TABLE B-1 (continued)

WORK GROUP PROCESS					
	<u>Mean</u>	<u>SD</u>	<u>Subset</u>	<u>df</u>	<u>F</u>
Work Support				2,12037	73.68***
Pilots	4.35	1.04	1		
Navigators	4.39	1.06	1		
Non-Rated	4.63	1.10	2		
Management and Super- vision				2,11782	10.34***
Pilots	5.42	1.18	2		
Navigators	5.30	1.26	1		
Non-Rated	5.28	1.39	1		
Supervisory Communications Climate				2,11530	10.74***
Pilots	4.98	1.28	2		
Navigators	4.86	1.32	1		
Non-Rated	4.83	1.46	1		
Organizational Communications Climate				2,11642	15.89***
Pilots	5.02	1.16	2		
Navigators	4.83	1.20	1		
Non-Rated	4.86	1.29	1		

Note: Groups not in the same subset are significantly different at the .05 level.

\*p < .05.   \*\*p < .01.   \*\*\*p < .001.

## Appendix B

TABLE B-1 (continued)

WORK GROUP OUTPUT					
	<u>Mean</u>	<u>SD</u>	<u>Subset</u>	<u>df</u>	<u>F</u>
Pride				2,12453	37.80***
Pilots	5.69	1.27	3		
Navigators	5.34	1.38	1		
Non-Rated	5.44	1.42	2		
Advancement/Recognition				2,11958	97.65***
Pilots	4.56	1.10	2		
Navigators	4.07	1.13	1		
Non-Rated	4.64	1.20	2		
Work Group Effectiveness				2,12080	9.75***
Pilots	5.86	.94	2		
Navigators	5.77	1.05	1		
Non-Rated	5.75	1.12	1		
Job Related Satisfaction				2,11264	156.85***
Pilots	5.24	1.02	2		
Navigators	4.83	1.19	1		
Non-Rated	5.46	1.08	3		
General Organizational Climate				2,11711	22.13***
Pilots	5.36	1.15	2		
Navigators	5.13	1.23	1		
Non-Rated	5.17	1.28	1		

Note: Groups not in the same subset are significantly different at the .05 level.

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

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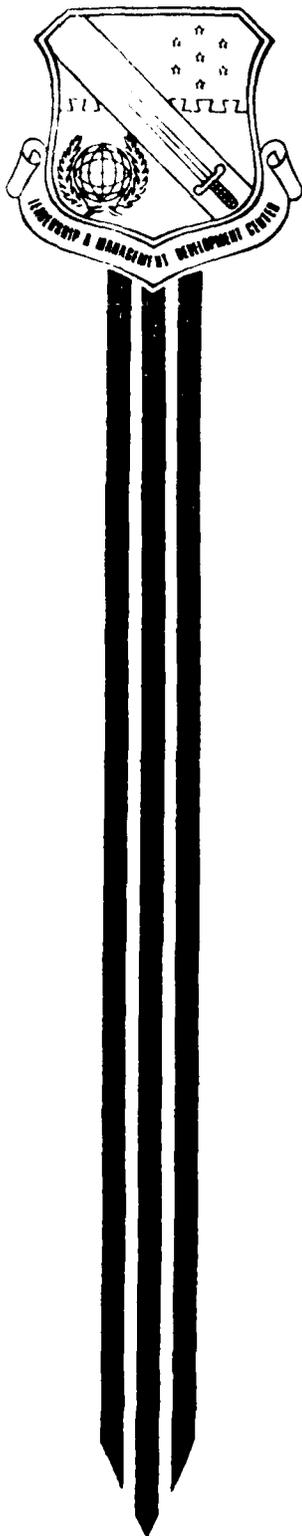
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# APPENDIX

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Appendix C  
Organizational Assessment Package Survey:  
Factors and Variables



**ORGANIZATIONAL ASSESSMENT  
PACKAGE SURVEY**

**FACTORS  
AND  
VARIABLES**

**JANUARY 1986**

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

FACTORS AND VARIABLES OF THE  
ORGANIZATIONAL ASSESSMENT PACKAGE

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

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

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

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

A. Demographics. Descriptive or background information about the respondents to the OAP survey.

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

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

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

- 800 - Skill Variety
- 801 - Task Identity
- 802 - Task Significance
- 804 - Job Feedback
- 806 - Need for Enrichment Index (Job Desires)
- 807 - Job Motivation Index

- 808 - OJI Total Score
- 809 - Job Motivation Index - Additive
- 825 - Motivation Potential Score

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

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

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

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

EXTERNALLY CODED DESCRIPTORS

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

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

DEMOGRAPHIC ITEMS (NOT A STATISTICAL FACTOR)

<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
-	-	Supervisor's Code
-	-	Work Group Code
-	-	Sex
-	-	Your age is
-	-	You are (officer, enlisted, GS, etc.)
-	-	Your pay grade is
-	-	Primary AFSC
-	-	Duty AFSC
001	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

Statement Number

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<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>	<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
009	6	Your highest education level obtained is:	014	11	Your work requires you to work primarily:
		1. Non-high school graduate			1. Alone
		2. High school graduate or GED			2. With one or two people
		3. Less than two years college			3. As a small work group (3-5 people)
		4. Two years or more college			4. As a large work group (6 or more people)
		5. Bachelors Degree			5. Other
		6. Masters Degree			
		7. Doctoral Degree			
010	7	Highest level of professional military education (residence or correspondence):	015	12	What is your usual work schedule?
		0. None or not applicable			1. Day shift, normally stable hours
		1. MCO Orientation Course or USAF Supervisor Course (MCO Phase 1 or 2)			2. Swing shift (about 1600-2400)
		2. MCO Leadership School (MCO Phase 3)			3. Mid shift (about 2400-0800)
		3. MCO Academy (MCO Phase 4)			4. Rotating shift schedule
		4. Senior MCO Academy (MCO Phase 5)			5. Day or shift work with irregular/unstable hours
		5. Squadron Officer School			6. Frequent TDY/travel or frequently on-call to report to work
		6. Intermediate Service School (i.e., ACSC, AFSC)			7. Crew schedule
		7. Senior Service School (i.e., AWC, ICAF, NMC)	016	13	How often does your supervisor hold group meetings?
011	8	How many people do you directly supervise?			1. Never
		1. None			2. Occasionally
		2. 1			3. Monthly
		3. 2			4. Weekly
		4. 3			5. Daily
		5. 4 to 5			6. Continuously
		6. 6 to 8	017	14	How often are group meetings used to solve problems and establish goals?
		7. 9 or more			1. Never
012	9	For how many people do you write performance reports?			2. Occasionally
		1. None			3. About half the time
		2. 1			4. All of the time
		3. 2	018	15	What is your aeronautical rating and current status?
		4. 3			1. Nonrated, not on aircrew
		5. 4 to 5			2. Nonrated, now on aircrew
		6. 6 to 8			3. Rated, in crew/operations job
		7. 9 or more			4. Rated, in support job
013	10	Does your supervisor actually write your performance report?			
		1. Yes			
		2. No			
		3. Not sure			

Variable  
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Statement  
Number

16

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

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

NOTE: Variable 008, Statement 11 was added to the OAP on 19 Jan 80 and replaced variable 014 which appears on page 6. Although no longer used, Variable 014 is still shown because data collected from about 25,000 samples for this variable are still in the data base.

FACTORS

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

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

<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
------------------------	-------------------------	------------------

201	17	To what extent does your job require you to do many different things, using a variety of your talents and skills?
-----	----	-------------------------------------------------------------------------------------------------------------------

212	29	To what extent does your job require you to use a number of complex skills?
-----	----	-----------------------------------------------------------------------------

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

<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
------------------------	-------------------------	------------------

202	18	To what extent does your job involve doing a whole task or unit of work?
-----	----	--------------------------------------------------------------------------

211	28	To what extent does your job provide you with a chance to finish completely the piece of work you have begun?
-----	----	---------------------------------------------------------------------------------------------------------------

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

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

**FACTOR 803 (NOT USED)**

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

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

**FACTOR 805 - WORK SUPPORT:** Measures the degree to which work performance is hindered by additional duties, details, inadequate tools, equipment, or work space.

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

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

9

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

Variable Number	Statement Number	Statement
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:** A composite index derived from the six job characteristics that reflect the overall "motivating potential" of a job; the degree to which a job will prompt high internal work motivation on the part of job incumbents.

Index is computed using the following factors:

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

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

**FACTOR 808 - OJL TOTAL SCORE:** Assesses one's perception of motivation provided by his or her job. This factor is a variation of a scale employed by other job motivation theorists.

Score is computed using the variables in the following formula:

Formula  $( Y201+Y202+Y203+Y270+Y271+Y272 + 8*Y205+Y207+Y208+Y209+Y210 + Y211+Y212+Y213 )$

10

FACTOR 809 - JOB MOTIVATION INDEX ---- ADDITIVE: This factor is a variation of a scale employed by other job motivation theorists.

Index is computed using the following factors:

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

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

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

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

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

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

11

FACTOR 812 - TASK CHARACTERISTICS: A combination of skill variety, task identity, task significance, and job feedback designed to measure several aspects of one's job.

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

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

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

12

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

<u>Variable Number</u>	<u>Statement</u>
226	To what extent do you perform the same tasks repeatedly within a short period of time?
227	To what extent are you faced with the same type of problem on a weekly basis?

**FACTOR 815 (NOT USED)**

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

<u>Variable Number</u>	<u>Statement</u>
255	A job in which tasks are repetitive.
258	A job in which tasks are relatively easy to accomplish.

**FACTOR - JOB INFLUENCES (NOT A STATISTICAL FACTOR):**

<u>Variable Number</u>	<u>Statement</u>
216	To what extent do you feel accountable to your supervisor in accomplishing your job?
238	To what extent do co-workers in your work group maintain high standards of performance?

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

<u>Variable Number</u>	<u>Statement</u>
234	To what extent are you aware of promotion/advancement opportunities that affect you?
239	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 and SUPERVISION (A):** Measures the degree to which the worker has high performance standards and good work procedures. Measures support and guidance received, and the overall quality of supervision.

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

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

<u>Variable Number</u>	<u>Statement</u>	
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:** Measures the degree to which the worker perceives that there is good rapport with supervisors, that there is a good working environment, that innovation for task improvement is encouraged, and that rewards are based upon performance.

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

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

Variable Number	Statement Number	Statement
300	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
301	83	My organization provides all the necessary information for me to do my job effectively.
302	84	My organization provides adequate information to my work group.
303	85	My work group is usually aware of important events and situations.
304	86	My complaints are aired satisfactorily.
309	91	The information in my organization is widely shared so that those needing it have it available.

15

- 314 My organization has clear-cut goals.
- 317 The goals of my organization are reasonable.
- 318 My organization provides accurate information to my work group.

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

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

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

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

16

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

<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
705	101	<u>Feeling of Helpfulness</u> 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	<u>Co-worker Relationships</u> 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	<u>Family Attitude Toward Job</u> The recognition and the pride my family has in the work I do.
717	106	<u>Work Schedule</u> My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
718	107	<u>Job Security</u>
719	108	<u>Acquired Valuable Skills</u> The chance to acquire valuable skills in my job which prepare me for future opportunities
723	109	<u>My Job as a Whole</u>

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

<u>Variable Number</u>	<u>Statement Number</u>	<u>Statement</u>
711	104	<u>On-the-Job Training (OJT)</u> The OJT instructional methods and instructors' competence.
712	105	<u>Technical Training (Other than OJT)</u> The technical training I have received to perform my current job.

17

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

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

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

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

Formula ( (800\*801\*802)/3)\*813\*804

18

VARIABLES

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

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

Variable Number	Factor	Statement	Statement Number
228-233	--	(Not used)	--
234	817	To what extent are you aware of promotion/advancement opportunities that affect you?	41
235-237	--	(Not used)	--
238*	--	To what extent do co-workers in your work group maintain high standards of performance?	42
239	817	To what extent do you have the opportunity to progress up your career ladder?	43
240	817	To what extent are you being prepared to accept increased responsibility?	44
241	817	To what extent do people who perform well receive recognition?	45
242-248	--	(Not used)	--
249	806	Opportunities to have independence in my work?	51
250	806	A job that is meaningful.	52
251	806	The opportunity for personal growth in my job.	53
252	806	Opportunities in my work to use my skills.	54
253	806	Opportunities to perform a variety of tasks.	55
254	--	(Not used)	--
255	816	A job in which tasks are repetitive.	56

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

Variable Number	Factor	Statement	Statement Number
256 & 257	--	(Not used)	--
258	816	A job in which tasks are relatively easy to accomplish.	57
259	821	The quantity of output of your work group is very high.	77
260	821	The quality of output of your work group is very high.	78
261	821	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.	79
262 & 263	--	(Not used)	--
264	821	Your work group always gets maximum output from available resources (e.g., personnel and material).	80
265	821	Your work group's performance in comparison to similar work groups is very high.	81
266-269	--	(Not used)	--
270	813	To what extent does your job provide a great deal of freedom and independence in scheduling your work?	20
271	813	To what extent does your job provide a great deal of freedom and independence in selecting your own procedures to accomplish it?	21
272	804/812	To what extent are you able to determine how well you are doing your job without feedback from anyone else?	22

Variable Number	Factor	Statement Number	Statement
273	810	36	To what extent are your job performance goals clear?
274	810	37	To what extent are your job performance goals specific?
275	811	46	To what extent does your work give you a feeling of pride?
276	817	47	To what extent do you have the opportunity to learn skills which will improve your promotion potential?
277**	--	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?
280-299	--	--	(Not used)
300	820	82	Ideas developed by my work group are readily accepted by management personnel above my supervisor.
301	820	83	My organization provides all the necessary information for me to do my job effectively.
302	820	84	My organization provides adequate information to my work group.

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

Variable Number	Factor	Statement Number	Statement
303	820	85	My work group is usually aware of important events and situations.
304	820	86	My complaints are aired satisfactorily.
305	824	87	My organization is very interested in the attitudes of the group members toward their jobs.
306	824	88	My organization has a very strong interest in the welfare of its people.
307	824	89	I am very proud to work for this organization.
308	824	90	I feel responsible to my organization in accomplishing its mission.
309	820	91	The information in my organization is widely shared so that those needing it have it available.
310	824	92	Personnel in my unit are recognized for outstanding performance.
311	824	93	I am usually given the opportunity to show or demonstrate my work to others.
312	824	94	There is a high spirit of teamwork among my co-workers.
313	824	95	There is outstanding cooperation between work groups of my organization.

Variable  
Number

Factor

Statement  
Number

314 820 96 My organization has clear-cut goals.  
315 824 97 I feel motivated to contribute my best efforts to the mission of my organization.  
316 824 98 My organization rewards individuals based on performance.  
317 820 99 The goals of my organization are reasonable.  
318 820 100 My organization provides accurate information to my work group.  
319-403 -- -- (Not used)  
404 818 58 My supervisor is a good planner.  
405 818 59 My supervisor sets high performance standards.  
406-409 -- -- (Not used)  
410 818 60 My supervisor encourages teamwork.  
411 818 61 My supervisor represents the group at all times.  
412 818 62 My supervisor establishes good work procedures.  
413 818 63 My supervisor has made his responsibilities clear to the group.  
414 & 415 -- -- (Not used)  
416 818 65 My supervisor performs well under pressure.  
417-423 -- -- (Not used)  
424\*\*\* -- 66 My supervisor takes time to help me when needed.  
425 -- -- (Not used)

Variable  
Number

Factor

Statement  
Number

426 819 67 My supervisor asks members for their ideas on task improvements.  
427 -- -- (Not used)  
428 819 68 My supervisor explains how my job contributes to the overall mission.  
429 & 430 -- -- (Not used)  
431 819 69 My supervisor helps me set specific goals.  
432 -- -- (Not used)  
433 819 70 My supervisor lets me know when I am doing a good job.  
434\*\*\* -- 71 My supervisor lets me know when I am doing a poor job.  
435 819 72 My supervisor always helps me improve my performance.  
436 819 73 My supervisor insures that I get job related training when needed.  
437 819 74 My job performance has improved due to feedback received from my supervisor.  
438 -- -- (Not used)  
439\*\*\* -- 75 When I need technical advice, I usually go to my supervisor.  
440 & 441 -- -- (Not used)  
442 819 76 My supervisor frequently gives me feedback on how well I am doing my job.  
443 & 444 -- -- (Not used)  
445 818 64 My supervisor fully explains procedures to each group member.  
446-704 -- -- (Not used)  
\*\*\* These variables are elements of "supervisory assistance" (not a statistical factor).

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

<u>Variable Number</u>	<u>Factor</u>	<u>Statement Number</u>	<u>Statement</u>
705	822	101	<u>Feeling of Helpfulness</u> 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.
708-708	--	--	(Not used)
709	822	102	<u>Co-worker Relationships</u> My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.
710	822	103	<u>Family Attitude Toward Job</u> The recognition and the pride my family has in the work I do.
711	823	104	<u>On-the-Job Training (OJT)</u> The OJT instructional methods and instructors' competence.
712	823	105	<u>Technical Training (Other than OJT)</u> The technical training I have received to perform my current job.
713-716	--	--	(Not used)
717	822	106	<u>Work Schedule</u> My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.
718	822	107	<u>Job Security</u>
719	822	108	<u>Acquired Valuable Skills</u> The chance to acquire valuable skills in my job which prepare me for future opportunities.
720-722	--	--	(Not used)
723	822	109	<u>My Job as a Whole</u>
724-999	--	--	(Not used)