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JOB ATTITUDES OF MISSILE LAUNCH OFFICERS

By

Alan C. Schlukbier

B.A., University of Nebraska, 1967

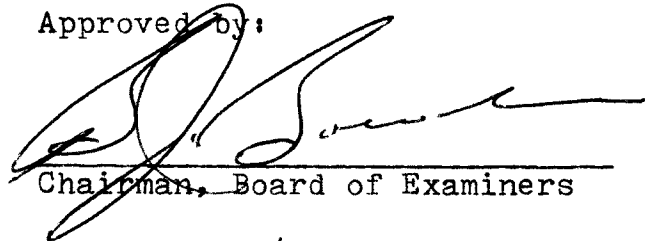
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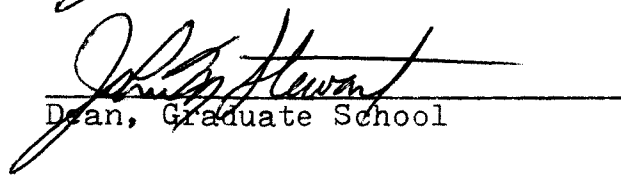
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PREFACE

This two year study has been an attempt to find an objective means of identifying the feelings and attitudes of Air Force Officers toward their launch control duty in the Minuteman Modernized Weapon System.

At the suggestion of Dr. George W. England, a former visiting professor at the AFIT detachment of the University of Montana, I have used the motivational research of Frederick Herzberg as a model. Extensive changes in technique and methodology have been made, but the essential theory has remained the same.

I should like to thank all of the officers who participated in my survey. Without their cooperation and participation this project would not have been possible. Their willingness to take time out of their very busy schedules to answer questions that were often by necessity, rather personal is a credit to them personally as well as to their profession. I wish also to give a special thanks to Major Richard E. Lakey, Commander, AFIT Detachment Number 5, whose efforts were instrumental in obtaining permission from the Air Force to make this survey.

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CHAPTER I

A GENERAL DESCRIPTION OF JOB ATTITUDES

Before discussing the main body of job attitude research and its relationships to this study, a few important general observations about work, motivation, and attitudes are worth mentioning.

Work is a very complex phenomenon especially in this age of technological development. Jobs can be routine or varied, inspiring or stultifying, over-easy or over-difficult. They can encompass an entire operation of tasks or they can be restricted to one minute aspect of an operation. Jobs can be mental, physical, or both. They can be personally rewarding or sheer drudgery, and the results may be obvious or subtle.¹ Work also relates to society. It gives a person a "role" or "place" in society. Not only does work provide an economic reward, but it also fulfills a psychological role in which the worker can perceive himself. The ultimate goal of work is self-actualization and

¹Milton L. Blum and James C. Naylor, Industrial Psychology: Its Theoretical and Social Foundations (New York, 1968), p. 328.

self-realization.² Therefore, the role in which a person perceives himself is determined not only by his individual values, drives, motives, and sentiments, but also by the manner in which he relates to his group. Thus, work embraces not only the economic needs of man, but also the individual psychological needs as well.³

Psychologists offer some interesting perceptions about motivation that are important to this study. For example, it is known that motivation stems from a variety of sources, not only from within an individual, but also from external factors acting on him. Nor are these two categories of motivational sources mutually independent; they are, rather, interacting at all times. Because a person is constantly undergoing ever-changing physiological conditions and is constantly affected by a multitude of previous experiences, it becomes difficult to assign single motives to a particular act or behavior.⁴ This is why, for example, much research has been unable to substantiate the view that, specific incentives encourage increases in production. On the contrary, production increases for many reasons in addition to the particular incentives offered

²Frederick Herzberg, Bernard Mausner, and Barbara Bloch Snyderman, The Motivation to Work (New York, 1959), p. 114.

³Blum, p. 360.

⁴Blum, p. 329.

and sometimes in spite of them. To make matters worse, people often do not know or are unable to reveal even the most basic motives involved in their behavior. Because it is very difficult to discern the direct relationships between a single motive and particular act or behavior, research in this area is necessarily limited and unsubstantial.

The reason for studying job attitudes is that it provides the link between work and motivation. The possession of an attitude often predisposes the individual to react in a specified direction. Hence, a knowledge of job attitudes should aid in the prediction of behavior in the work environment. Attitudes are the beliefs, feelings, and action tendencies of an individual or group of individuals toward objects, ideas, and people.⁵

Two characteristics of attitudes are important to understand before a discussion of their measurements can begin. First of all, attitudes are not necessarily a result of intelligence or comprehension. They are part of our hedonistic consciousness and consist of likes, dislikes, emotions, sentiments, and opinions. Thus, attitudes are not necessarily either logical or rational, but are a reflection of our opinions and views. The second characteristic is that attitudes change. This is significant because it makes attitude measurement practical.

⁵Blum, p. 274.

The research that has been done on job attitudes can be divided into the following classifications: measurement of job attitudes, factors in job attitudes, and effects of job attitudes.⁶ The measurement of job attitudes has been devoted mainly to the itemization of worker morale variables. The value of such itemization is that one can then compare the morale or job satisfaction of workers differing in age, sex, education level, or hierarchal position. Then, scaled inventories of morale can be taken so that it is possible to investigate specific components of morale. Or, no measure of morale need be taken, and instead a psychologist merely observes workers' behavior, inferring their attitudes, feelings, and motives, as was done in the Hawthorne studies. Studies measuring job attitudes have resulted in much speculation about why attitudes change. Various theories have been proposed to explain this phenomenon in terms of congruity, harmony, and balance. The essence of all these theories is that incongruity, dissonance, and imbalance are conditions of disequilibrium, and under such conditions attitude changes can occur and be demonstrated.⁷ The value of these studies, however, lies not in their theoretical implications but rather in their contributions to attitude measurement technique and methodology.

⁶Herzberg, Motivation, p. 5.

⁷Blum, p. 278.

Some of these methods of attitude measurement include: impressionistic, structured interview, extemporaneous interview, questionnaire, and attitude scales.⁸ The impressionistic method is probably the least scientific and is based upon the mere observation of behavior and attitudes. The real disadvantage of this technique is that so much depends upon the ability and biases of the observer. Not surprisingly, the accuracy of this method will range anywhere from very poor to rather good. It is also non-statistical and it does not lead to quantitative knowledge. The structured interview uses a prepared set of questions in an effort to obtain easily comparable data. It has been known to be valuable in yielding information on specific frustrations of employees.⁹ It has the advantage of face-to-face contact which can be indispensable in impressing the interviewee with the importance of what he is saying. It is statistical and yields quantifiable data. Its chief disadvantage is that it is time-consuming and expensive. The extemporaneous interview is similar to the structured, but without any prepared questions. It is characterized by the free nature of the discussion and by the fact that the interviewee defines its limits. Its chief disadvantage is that it is difficult to summarize and requires laborious study, which can be time-consuming and expensive.

⁸Blum, p. 283.

⁹Blum, p. 285

The questionnaire is probably the most widely used technique of attitude measurement. It is economical, relatively fast, and lends itself well to large statistical samples. It also eliminates any effect the interviewer may have on the respondent. Its chief disadvantage is that it secures no more information than asked for by the questions. The questionnaire lacks the spontaneity of an extemporaneous interview. It is difficult to insure that the respondent gives his full attention to answering all the questions, and the questions themselves must be easily understood and carefully worded to eliminate any double meanings.

The last method that is widely used in attitude measurement is the scale. This is sort of a "psychological yardstick"; several types of scales are in use.¹⁰ The main advantages of this technique are in its simplicity and ease of use. The major weakness is that it is readily faked. A person can easily falsify his attitude in order to emphasize and exaggerate a particular like or dislike by indicating a high or low scale reading. It also lacks specificity because it does not give enough detailed information about an attitude.

The second general classification of job attitude research is factors. In studying the factors of job attitudes, considerable attention has been given to the question,

¹⁰Blum, p. 294.

"What does the worker want from his job?" Studies of this question have typically taken the form of workers ranking a list of a priori factors (attitude scales) such as wages, supervision, company and management policies, and communications. A great deal of statistical work in analyzing rankings of factors has produced various lists of factors. These lists can then be used to note differences in job factors as they correspond to workers at different job levels, ages, and sexes. Herzberg, Mausner, Peterson, and Capwell compiled data from sixteen factor analysis studies and were able to rank different factors in order of importance according to employee attitudes.¹¹ Management has used studies of this nature as clues to ways of motivating workers. But these studies are of far greater importance in their contribution to behavioral theory in identifying certain causative agents. For example, a survey of seven studies examined by Vroom has indicated a negative relationship between job satisfaction and turnover.¹² That is, the higher a worker's satisfaction, the less apt he is to leave the job. Other factor studies have tried to show relationships between job satisfaction and absenteeism, job satisfaction and job performance, and how job satisfaction is related to other factors. Unfortunately the stability of these factor studies has been rather slight and, while they

¹¹Blum, p. 371.

¹²Blum, p. 373.

offer certain clues and insights, they fail to explain the effects that result from these factors.

The third classification includes studies of the effects of job attitudes. Here again, a large body of research has been directly sponsored by corporations eager to attribute increases in production to human relations training programs or to recreational programs designed to increase worker morale. The few studies that have been objective seem to indicate at best only a tenuous correlation between job attitudes and performance on the job.

A careful examination of all these studies seems to indicate at least two important deficiencies. First, the fragmentation of the various studies suggests the need for better methodology. A lack of unified techniques would account for the instability and disagreement of much of the data. Second, most of the studies can be characterized by incomplete theory. This is probably the most serious deficiency and merits some discussion.

The study of job attitudes is still a fairly new and specialized field. Most of the theory has been borrowed from motivational psychology. Three theories of human motivation that are particularly important to this study are: Maslow's Hierarchical Theory, Vroom's Valence-Force Theory, and Stodgill's Theory of Leadership. Maslow's theory is particularly important. Briefly, his theory states that a person is motivated to some action (behavior) according to

a hierarchal system of five basic needs. The importance of this theory is in the emphasis on a hierarchy of needs. In other words, a person is motivated according to his most basic physiological, safety, and love needs first, and then proceeds to the higher social needs of esteem and self-actualization. The basic premises of Maslow's theory are:

- (1) The behavior of any person is dominated and determined by the most basic groups of needs which are unfulfilled.
- (2) The individual will systematically satisfy his needs, starting with the most basic and moving up the hierarchy.
- (3) More basic need groups are said to be prepotent in that they will take precedence over all those above them in the hierarchy.¹³

These premises are important in studying job attitudes in that they explain the differences in attitudes that people should have at various organizational levels. That is, the degree of job satisfaction depends on the level and size of the organization. The higher the organizational levels, the more favorable will be the job attitudes of individuals in large organizations compared with those of individuals in small organizations. Maslow's theory is also applicable in determining the basis for job satisfaction. Those jobs that fulfill more of the five need categories should result in greater satisfaction than jobs which can fulfill only the most basic need categories. According to

¹³Blum, p. 332.

the theory:

"...the desire (valence) for any particular objective (outcome) on the part of an individual is directly related to the likelihood (instrumentality) that the objective will in turn lead to other subsequent objectives of given desirability (valence)."
[Blum's parentheses.]¹⁴

Also, the greater the valence of any outcome, the more apt a person is to take action. Thus, such factors as absenteeism and turnover should have a negative relationship to satisfaction. As it turns out, existing data support the theory, but the data have much lower predictive value in determining the relationship between other factors such as production and job satisfaction.

Stogdill's theory is important to attitude studies because of his interesting assertion that production may have little to do with job satisfaction. His conclusions state that the outputs of organizations are group integration, production, and morale. "Therefore, morale and production will only be related to satisfaction when the contributions which lead to high morale and production are also those which lead to reinforcement of worker expectations."¹⁵

In summary, Maslow explains job satisfaction in terms of fulfilling a hierarchal system of needs; Vroom states that it is a function of all the worker's desires

¹⁴Blum, p. 337.

¹⁵Blum, p. 376.

or valences; and Stogdill denies that job satisfaction is a causative agent in determining job performance. None of these theories treats job attitudes, factors, and effects as a unit. Maslow and Vroom deal with attitudes and factors while Stogdill deals only with effects. While these theories are not the only ones in the field of job attitudes they are representative of the range of theory. Clearly, there is room for theory that would treat attitudes, factors, and effects as a wholly integrated concept. This is exactly what Herzberg's Motivational-Hygiene Theory does.

Beginning with a small study of two hundred accountants and engineers, Herzberg collected data on attitude factors associated with positive and negative attitudes to see if there were any differences. The study showed that there were indeed two separate sets of factors, and this led to his Theory of Duality.¹⁶

The attractiveness of Herzberg's theory lies in its simplicity and the present study is just one of several that have tried to prove or disprove the main hypothesis. Herzberg called the set of factors associated with positive attitudes motivators, because they were concerned mainly with intrinsic work components, and he called the factors associated with negative attitudes hygiene factors because they were

¹⁶The terms "Theory of Duality" and the "Motivational-Hygiene Theory" are frequently used interchangeably and are synonymous.

associated mainly with the extrinsic qualities of the work environment. From the results of his study, Herzberg postulated that job satisfaction is determined primarily by those factors designated as motivators, which have the ability to fulfill the actuating needs of the individual. The motivators are in contrast to the hygiene factors in that the latter have the ability to meet the needs of the individual for avoiding unpleasant situations. Both the motivators and the hygiene factors fulfill the needs of the individual, but they differ in the nature of their motivating capability. One factor relates to doing the job (motivator) while the other is concerned more with the context of the job (hygiene). One has the potential to fulfill the actualizing needs of the individual whereas the other can do no more than meet the avoidance needs of the individual.

The implications of this theory are indeed far-reaching. For business and industry it means that embracing the goal of job satisfaction may involve more concentrated effort in improving the potential of job growth and achievement rather than efforts directed to stock options, health plans, and retirement benefits.

THE PROBLEM

Attitudes are important in jobs. Studies have shown that they do affect such things as turnover, absenteeism, and working relations, and may affect productivity. Attitudes are equally important in the job of a Missile Launch Officer and are, therefore, worthy of study.

The problem of this study is to find out what Missile Crew Members really want from their jobs. Studying job attitudes in an objective and systematic manner should provide significant insights into the motivating forces and behavior patterns peculiar to Missile Duty.

At the very least, this study should indicate the pattern of factors involved in the formation of job attitudes as well as the effects that these attitudes have on job performance.

THE HYPOTHESIS

A pilot project of fifteen interviews was accomplished prior to the main study in order to test three basic assumptions. Those assumptions were: (1) It is possible for people to tell about times when they felt exceptionally good or bad about their job. (2) More important, it is possible to identify the factors responsible for people's expressed attitudes about their jobs. (3) A content analysis can reveal in sufficient detail the effects of these attitudes

upon job performance. The results of the pilot project confirmed the efficacy of the first two assumptions and suggested that more detailed questions could provide better data on effects of job attitudes.

Although the sample of the pilot project was rather small, the attitude factors identified largely corresponded to Herzberg's Motivation-Hygiene Theory. The one factor that was an exception to this theory was recognition. Apparently recognition was as important in negative attitude formation as it was in the formation of positive attitudes. Since this conclusion was contrary to Herzberg's concept of duality or separateness between motivators and factors of hygiene, further investigation seemed warranted. The hypothesis that factors leading to positive attitudes are different and separate from factors leading to negative attitudes was chosen for this study.

CHAPTER II

METHOD

The pilot project was instrumental in determining the method and procedure of the major study. Initially, the pilot was restricted to only deputy crew commanders on the rationale that since this would most likely be their first assignment in the Air Force, they would be more objective and less likely to be affected by previous work experience. The results of the pilot showed, however, a very narrow range of attitudes. In order to obtain a better spread of attitudes the population sample was changed to include crew commanders.

The pilot interviews also demonstrated the difficulty that most crew members had in giving long-term sequences associated with positive attitudes. For this reason the major study was necessarily limited to usually two sequences, one exhibiting a positive attitude change and the other a negative attitude change. The sequences could be either short or long-term. The value of long-term sequences is that they often contain better detail on attitude effects than short-term sequences; for that reason these were encouraged in the interviews.

The population of the major study consisted of two hundred and ten regular line crew members from which a sample of twenty-nine crew members was interviewed. Out of the twenty-nine persons interviewed two were eliminated because they had been on a crew for less than three months and had not had enough experience to form definite attitudes. Another person was eliminated because he stated that he was completely indifferent to his job. The sample was chosen on a random basis from the three Minuteman Modernized Missile Squadrons. All Instructor and Standboard Crews were eliminated from the original population because their jobs often included teaching, evaluating, and other tasks that were sometimes quite removed from the day-to-day alert experiences of regular-line (R) crew members.

The sampling procedure consisted of semi-structured interviews using Herzberg's critical incident question format (Appendix II). The semi-structured interview was chosen as the sample instrument for several reasons. The impressionistic and extemporaneous interviews were rejected outright as being too unwieldy. Attitude scales would not give enough detail, especially for sampling attitude effects. The questionnaire was attempted but was found to be too time-consuming to fill out. Several crews also objected to these questionnaires on the basis that their answers could prove embarrassing if Squadron Commanders or other crews saw them. In spite of assurances that the questionnaires

would be handled in strictest confidence, enough reluctance to participate was expressed to necessitate an oral type of interview. The face-to-face contact was invaluable in not only gaining the respondent's confidence, but also in soliciting data that otherwise would not have been obtained. For example, it was often too easy for the respondent to say that his attitude had no effect on his job performance. But with a few probing questions the attitudinal effects toward his career, other people, etc., were easily revealed. The interviews, therefore, had to be semi-structured so that the questions that were often suggested by rather vague replies could be asked.

The central feature of the design was the request that the interviewee identify periods of time in his crew duty experience when his feelings about his job were unquestionably higher or lower than usual. No attempt was made to further specify attitude measurements, such as a scale or stanine curve. In this way, the problems inherent in many studies of weighting scores, comparisons of the meaning of a given score from one individual to another, or the evaluation of reliability of measurement were avoided. The major study proved, as did the pilot, that people were able to place their feelings about their jobs on a continuum, identify the extremes of this continuum, and choose those extreme situations to report. Therefore, the attitudes sampled were necessarily the most extreme positive and

extreme negative ones according to the interviewee's crew experience. There were only three cases in which respondents were not able to relate sequences involving high (positive) and low (negative) attitudes about their jobs. Two of those cases involved crew members with less than a week of crew duty; the other was a crew member who admitted that he was completely indifferent to his job. All three interviews were discarded.

All of the data obtained in the identification of factors and the effects of high and low attitudes were obtained by a content analysis of those episodes which the subject picked as involving high and low morale. By examining actual events, several distorting forces were eliminated.¹⁷ Most studies of attitude factor identification rely on a priori listings of factors such as wages, social relations, and supervision that the person ranks. The problem is that most people tend to play "roles" when ranking such a list of factors. Often a person will rank these according to his own conception of "social acceptance," or else he tries to please the investigator by assuming a role that has little relation to his actual attitudes. But pinning the respondent down to an actual event assures that psychologically he will be less influenced by both conscious and unconscious biases.

¹⁷Herzberg, Motivation, p. 15.

In order to standardize the analysis of these high and low sequences, certain definitions had to be made. First of all, a sequence was defined as a single event or a series of events that involved a change of job attitude that was recognized by the respondent as being exceptional or unusual.¹⁸ Another general term used quite frequently in relation to attitude studies is factor or attitude factor. "Factor," as used in this study, was defined as an objective element of the situation in which the respondent finds a source for his positive or negative feelings about the job.¹⁹ In order to further clarify and standardize each variable or factor so that different situations could be compared according to common variables, the following definitions of attitude factors were adopted:

Recognition. This involved some act of personal recognition to the crew member that was interviewed. Acts of recognition commonly involved such things as being awarded a highly qualified rating (Q) as a result of a standboard, or being chosen for a special duty such as

¹⁸ Herzberg, Motivation, p. 44.

¹⁹ Ibid.

participating in a Vandenberg Launch.²⁰ The important criterion was that the person had actually to perceive the event as a personal recognition. In other words, events involving awards which he did not consider particularly significant were not coded as recognition. This category also included the opposite of recognition, criticism or personal blame. Careful attention was given to the possible confusion between interpersonal relations and recognition. If the emphasis was placed on the nature of the interaction between a respondent and an Operations Branch Officer (OBO), for example, instead of the award or criticism, then this was coded as involving interpersonal relations.²¹

Achievement. Achievement was defined as some accomplishment and also included its opposite, failure or the absence of achievement. Sequences involving successful completion of a standboard or completion of certain training

²⁰Standboard is the Air Force term used to describe the evaluation of a crew member's weapon system and Emergency War Order (EWO) knowledge. The evaluation consists of two phases. The first phase is a three to four hour observation conducted in a computerized simulator in order to realistically duplicate EWO procedures. The second phase is another observation in an actual capsule which also includes a question period on all the classified and technical data with which each launch officer must be familiar. All standboards are no-notice and are a yearly requirement.

²¹An Operations Branch Officer (OBO) is a senior Captain, Major, or Lieutenant Colonel whose background includes Missile Crew Duty. He is the immediate supervisor of a Missile Crew and is directly responsible to the Squadron Commander.

were commonly coded as achievements. Standboard failures were also included in this category if it was perceived as a failure by the crew member.

Possibility of Growth. This was included because a crew member often included sequences involving an event which either enhanced or detracted from further career progression--for example, being recommended for an Instructor position which the crew member considered as increasing his possibilities for growth within the Wing.²² Likewise, this also included a decrease in the possibility of growth.

Advancement. This category was used only in those cases where there was actual change in the status or position of a person within the Squadron or Wing--for example, being selected as the youngest Crew Commander in the Wing. (Those sequences which involved no change in status but a transfer from one Squadron to another, for example, and an increase in responsibility were coded as responsibility.) The advancement category also included demotion such as removal of Instructor status and reassignment to a line crew position.

Interpersonal Relations. Virtually every sequence could have been coded as involving interpersonal relations.

²²Wing--The particular Missile base used for this study consisted of a Missile Wing composed of four Minuteman Squadrons (three Minuteman Modernized and one Minuteman II Squadron).

To preclude this from happening, a rather specific definition was used. Interpersonal relations had to involve actual verbalization about the characteristics of the interaction between the person speaking and some other person. This category was further subdivided into the three subsets of interpersonal relations--(superior), interpersonal relations (subordinate), and interpersonal relations (peers). It was actually quite easy to code sequences in this category because people usually gave quite detailed descriptions of the verbal interaction. Typical examples included a deputy's being personally congratulated for a good job on a standboard by his commander or a dispute between a crew member and his OBO.

Supervision (Technical). This is similar to the interpersonal relations-superior category. The difference was in the emphasis placed on the supervisor's behavior in carrying out his job. If the sequence revolved around the competence or incompetence, fairness or unfairness of the supervisor rather than the personal interaction, it was coded as supervision-technical. For example, one sequence involved a crew member's being called out on an extra alert because the OBO was unable to fill out the necessary paper work to get the alert switched.

Responsibility. Factors relating to increased or decreased responsibility and authority were coded in this category. Specifically, this coding was used in sequences

in which the respondent stated that he derived satisfaction from being given responsibility for his own work or for the work of others, or from being given new responsibility. Naturally, the converse--being given less responsibility--was also coded in this category. An example of this category was a deputy who expressed a certain challenge at being given the additional responsibility from the Squadron of helping a weak commander get through a standboard and doing well on that standboard.

Air Force Policy and Administration. This category describes those components of a sequence of events in which some over-all aspect of the Air Force was a factor. For example, into this category fell sequences which involved the adequacy of Air Force organization and management. Also included in this grouping were the harmfulness or beneficial effects of Air Force Policy and its personnel management.

Work Itself. Work itself was used when the respondent indicated that the source of good or bad feelings for a job was the actual doing of the job or tasks associated with the job. An example of this was a sequence in which the person described all the tasks associated with a standboard and the enthusiasm that he had in doing them.

A severe limitation was imposed by the central design characteristics in evaluating the effects of a respondent's attitudes. Since no objective criteria were used to measure these effects, it is understandable that a certain amount of

skepticism should exist concerning the validity of the sequences that given behaviors were consequent upon job attitudes. Therefore, it is impossible to say that the data on effects represent direct evidence of the behavior of the respondents. It is unlikely, however, that sound objective criteria for evaluating these effects could have been devised. The job of a missile launch officer is not like an assembly-line job where production and efficiency can be measured objectively. This job is similar to many executive management positions where no simple direct evidence is measureable in the short run. Rather, individual crew member output is quite complex and detailed. An observer, knowledgeable about the job, would be in a good position to judge the effects of a crew member's job performance resulting from good and adverse attitudes. This would be an application of the impressionistic method. Unfortunately, the use of a trained observer would have been quite impractical and the resulting data could still be criticized on the basis of individual bias. Also, one must remember that the sequences themselves had their own basis for validity in that they did actually happen and in many cases only the individual concerned was in a position to be aware of the effects. Without objective criteria, then, the data on effects are presented not as direct evidence of behavior, but rather as indications that this behavior had a high degree of probability and that

observation or other objective measures of behavior would be likely to yield the same results.²³

In order effectively to compare the effects between sequences the following definitions were adopted:

Performance Effects. Three types of performance effects were identified in the sequences. These included better or poorer performance, changes in the rate of work, and changes in the quality of work. These different types of performance effects were later consolidated into one since there was so little statistical difference between quality and rate effects. An additional subset had to be included in this category because of the negative answers to the question, "Did this affect the way you did your job?" It is difficult to know whether a negative reply to this question represents the actual effect of professional pride in preventing the lowering of work standards in work or whether it represents self-justification and rationalization. Most respondents, however, were able to identify the changes in their performance with detailed examples, such as an increase in attention to detail as a result of a highly successful standboard.

Mental Health Effects. The effect of job situations on the mental health of respondents was evident in such remarks as, "I felt a great deal of relief in successfully

²³Herzberg, Motivation, p. 84.

passing the standboard," or "I was able to catch up on lost sleep after the standboard." The only expressed negative effects in this category had to do with sleep and tension. The positive effects were concerned with the relief of anxiety or tension, and with improved sleeping habits.

Effects on Interpersonal Relationships. This included all improvements and degenerations in interpersonal relationships as a result of the related sequences. This category was further subdivided into being more (or less) irritable at home, more (or less) irritable on the job, and being more able (or less able) to get along with people associated with the job environment.

CHAPTER III

RESULTS

The results of this study will be presented in three sections: the factors that lead to positive attitudes toward the job, and the factors that lead to negative attitudes toward the job, the effects that these positive and negative attitudes produce, and a summary of the data.

FACTORS

The major question that is hypothesized in this study is whether different kinds of factors were responsible for bringing about job satisfaction and job dissatisfaction. With two exceptions the data support the hypothesis. The high factors can be divided in order of their frequency among twenty-six sequences into five main groups: Achievement, recognition, possibility of growth, advancement and responsibility, interpersonal relations, and work itself (Table 1A, Appendix I). The low factors can similarly be divided into four main groups: Air Force policy and administration, achievement, and the less frequent group of recognition, possibility of growth, and supervision-technical (see Table 1B, Appendix I). The two major exceptions to the hypothesis occurs in the factors of achievement and

interpersonal relations. Before discussing the implications of these two factors for the main body of theory, it will be necessary to present a detailed analysis of each factor and effect.

Achievement was the most frequent factor mentioned in the sequences of high attitudes; this indicates that crew members are highly achievement oriented. Most of the sequences in this category revolved around standboard evaluations in which there are only three outcomes: a highly qualified rating, a qualified rating, or an unqualified rating. This "pass" or "fail" evaluation system perhaps tends to overemphasize the factor of achievement, it is, nevertheless, a central characteristic of this job. It is also interesting to note that while many respondents expressed reservations and criticisms of this evaluation system, the high sequences most commonly given involved highly-qualified standboards. This would indicate that most crew members perceive an HQ (highly qualified) rating as a definite accomplishment.

Recognition was very close to achievement in order of frequency. This result was not unexpected, since the accomplishment of a highly qualified standboard rating is normally followed with the award of an HQ pin presented to the individual before his peers at pre-departure briefings. The fact that recognition is rated below achievement indicates that the achievement is foremost in the minds of crew members

beyond the recognition. The difference in these two factors, however, is not statistically significant (A .01 significance).

The possibility of growth was third in the list of factors--which indicates the importance that officers attach to this job variable. The themes in most of the sequences in this category involved being selected as an instructor, or standboard crew member as a result of a good standboard, or being personally congratulated by a superior (for example, a Squadron Commander or Operations Branch Officer).

Advancement and responsibility both ranked fourth in order of frequency. It is understandable that advancement should be rated lower than possibility of growth in this job, since crew duty is a four-year stabilized tour. Also, most sequences involving a change from regular crew duty to instructor or standboard were coded as the factor of responsibility, since most respondents perceived such a change as an increase in responsibility. However, even adding these two categories together would put advancement and responsibility below growth in order of frequency. This is somewhat surprising, because the job of Missile Launch Officer is rather important in the event of a nuclear war. Evidently, most crew members perceive their peacetime duties as having much less responsibility than their wartime duties. The frequency with which responsibility was mentioned, as compared to the factor of achievement also shows that in this

job most achievements are not accompanied by increased responsibility.

The low frequencies associated with interpersonal relations and work itself make it difficult to draw any firm conclusions about these factors. The very fact that these two factors are ranked so low, however, signifies that crew members are least motivated by interpersonal relationships and the work itself to form positive job attitudes.

The kinds of situations and forces that lead to highly positive attitudes toward the job have been discussed. But what can be said about attitude duration? The differences in sequence length and attitude duration is illustrated in Tables 2A and 2B, Appendix I. A short-term sequence consists of a single event and a long-term sequence consists of more than one event that forms a complete series. Attitudes which the respondent said lasted six months or more were designated long-term while those that lasted less than six months were considered short-term. As is shown in Table 2A, most high sequences were short-range and resulted in short-term attitude changes. Thus, single events tend to cause good feelings about the job, but such good feelings commonly last for less than six months.

Table 3A, Appendix I, gives further details on the duration of attitudes according to each factor. It is apparent that the factors of achievement, recognition, and possibility of growth are most responsible for the long-term

attitude changes. The table also shows that recognition is the most frequent factor in short-term attitude changes. This seems to substantiate the lower ranking of recognition compared to achievement as an important factor in positive attitude formation in the minds of crew members.

The interrelationships among the high factors (Table 4A, Appendix I) shows that while achievement and recognition are closely interrelated, achievement is less dependent than recognition. This table also points out that recognition, achievement, and possibility of growth are all closely interrelated.

The main characteristics of the high factors can be summarized as follows: First, the top four factors focus on doing the job successfully, on recognition for doing the job, and on moving upward as an indication of professional growth (Table 1A). These factors center around the self-actualizing qualities of the job. Second, the good feelings about the job are from short-range situations and are predominantly temporary in nature (Table 2A). Third, only a relatively small number of factors--all highly interrelated--are responsible for good feelings toward the job (Table 4A).

The low sequences can be similarly analyzed according to factors, sequence and attitude length, duration of feelings and interrelationships. The factors in the low sequences can be divided into four parts. Air Force policy and administration, interpersonal relations, achievement, and the low

frequency group of recognition, possibility of growth, and supervision-technical (Table 1B).

Interpersonal relations and Air Force policy and administration were both ranked high in frequency. Most of the sequences coded as interpersonal had to do with personal disputes between crew members and their superiors. Many of them had to do with standboard failures and were characterized by bitter interactions involving rather detailed and technical matters. A typical comment involving an incident of interpersonal relations was, "I didn't mind so much being criticized for the standboard bust, but it was the way in which it was done." One example involved a crew commander who had failed a standboard evaluation. During the formal critique, it took over half an hour to explain to the Senior Officer present exactly what the error was that the crew had committed.²⁴ Then the Officer turned to the crew and asked, "How could you make such a stupid mistake?" The crew commander felt that the comment was unjustified, since the explanation involved some rather complicated procedures. Another example involving a standboard failure also occurred in the formal critique. A Senior Officer made derogatory remarks concerning the individual's former assignment in Weather Operations. Although no argument resulted, the

²⁴ Formal critique refers to the briefing given by the evaluating crew before the crew and their senior officers (Squadron Commander, OBO, Wing Executive Officers, etc.) in which a detailed listing of the crew's errors is presented.

individual reported an open hostility toward the superior. Sixteen out of twenty-six low sequences involved interpersonal relations and all but four of these were disputes between a crew member and a superior. Evidently, when deteriorated interpersonal relationships between a supervisor and a subordinate do occur, the effects can be devastating to the crew member. An extreme example of this involved a crew commander who applied for another assignment as a result of being reprimanded at pre-departure briefing for failing three tests during a practice exercise. The crew commander who had not had any sleep for twenty-four hours prior to taking the tests, felt that he had been unjustly singled out.

Air Force policy and administration covered the broad area from the policies and personnel management at the Squadron and Wing levels to the Missile Command (SAC) and the Air Force. There are two aspects to this category. In one, sequences revolve around Air Force ineffectiveness produced by inefficiency and duplication of effort. For example, one deputy reported having had three standboards in less than two months. Normally standboards are given once every year except for the crew's initial standboard, or right after a standboard failure in which it is once every six months. In this case, the deputy was crewed with a different commander at each evaluation. Two of the commanders were due for an evaluation, but the third was not,

because he was soon to change into a different weapon system. The point was that at least two of the standboards could have been avoided and one definitely should have been.

The deleterious effects of Air Force policy were the second and predominant aspect in this category. These include personnel policies and other management policies that are viewed as unfair or that in some way have detrimental effects on the respondent or his peers. For example, one man reported that his leave request was turned down because he wanted to visit Japan. He had complied with all pertinent regulations, but no one wanted to assume the responsibility of approving his leave. Therefore, his request was allowed to sit on a Senior Officer's desk until it was too late for him to make airline reservations. The request was officially neither approved nor disapproved. A more typical example involved a crew member who failed a particular monthly recurring test. He was required to take three more tests and give a written explanation to his Squadron Commander of why he had failed the first test. He felt that he had not missed the question and that the present policies were unfair and reactionary.

The third most frequent factor involved in low sequences was lack of achievement, or even failure. These sequences involved an expressed frustration or feeling of failure on the respondent's part. An example of this factor category was one man's failing a standboard and being told that although the error was justifiable under the circumstances, the evaluation failure would still have to stand.

The fourth group of factors mentioned most frequently in low sequences was recognition, possibility of growth, and supervision-technical. Sequences involving recognition or criticism and blame were often associated with interpersonal relations and involved being singled out for failing tests, standboards, or some other type of training. As might be expected, sequences coded as supervision-technical, describing the poor technical qualities of supervision, also described poor interpersonal relations with supervisors. For example, a crew commander's request for an OBO's position was denied because of the poor manner in which the request was handled. A waiver for the necessary crew duty requirement was not initiated because the supervisor was afraid to make such a request even though it was a common procedure.

The last group of factors, which included advancement, responsibility, and work itself, were statistically insignificant (A.01 significance). An example of this category involved one sequence in which a crew commander was demoted from an instructor position to a line crew because of the actions of his deputy. Some sequences in this group involved complaints of harassment on the job and the monotonous routine of missile duty.

An analysis of the low sequence range and attitude duration reveals one rather startling difference from the high sequences. Most of the short-range sequences of single events produced rather long-lasting attitude changes,

(Table 2B). An examination of attitude duration by factor also shows that the two most frequent factors in low job attitudes (interpersonal relations and Air Force policy and administration) also produced long-term attitude consequences (Table 3B). An examination of interrelationships in the low factors also shows that Air Force policy and interpersonal relations are closely allied (Table 4B).

A comparison between the high and low factors shows that the range of percentages in the five top factor groups in the highs was larger than the range of percentages in the four top factor groups in the lows. Also, with the exception of the factors of interpersonal relations and Air Force policy, the differences in frequencies in the lows was small in contrast to the more graduated frequency differences in the highs. It is also evident that the factors of interpersonal relations and Air Force policy and administration are the greatest single forces in leading to job dissatisfaction and that the other dissatisfiers are about equal in potentiality for producing job dissatisfaction. In contrast, the factors leading to high job satisfaction show a greater tendency of being bidirectional, that is, working both as satisfiers as well as dissatisfiers, and only the first five factors mentioned previously can contribute to job satisfaction (Figure 1, Appendix I).

There are also some exceptions to the hypothesis in the low factors. Achievement, recognition, and possibility

of growth all show significant frequencies in the low sequences as well as in the high sequences. This indicates that they are bidirectional and can contribute to job dissatisfaction as well as job satisfaction. Interpersonal relations also contribute to job satisfaction as well as being the most significant dissatisfier along with Air Force policy and administration.

Another important contrast between the high and low factors is in attitude duration. In the lows almost twice as many sequences contribute to long-term attitude changes than do the highs.²⁵ Evidently the dissatisfiers have longer lasting effects in this job than do the satisfiers.

The contrast between the high and low factors can best be summarized by Figure 1. This figure shows the distinction between satisfiers and dissatisfiers according to the results of the study. As indicated in the legend, the distance from the neutral area shows the percentage frequency with which each factor occurred in the high job attitude sequences and in the low job attitude sequences. The width of the rectangles represents the ratio of long-range to short-range attitude effects; the wider the box, the more frequently this factor led to a long-range job attitude change. Achievement, recognition, and possibility of growth stand out

²⁵Table 2A shows total long-term attitude sequences of 12 compared to 23 in Table 2B.

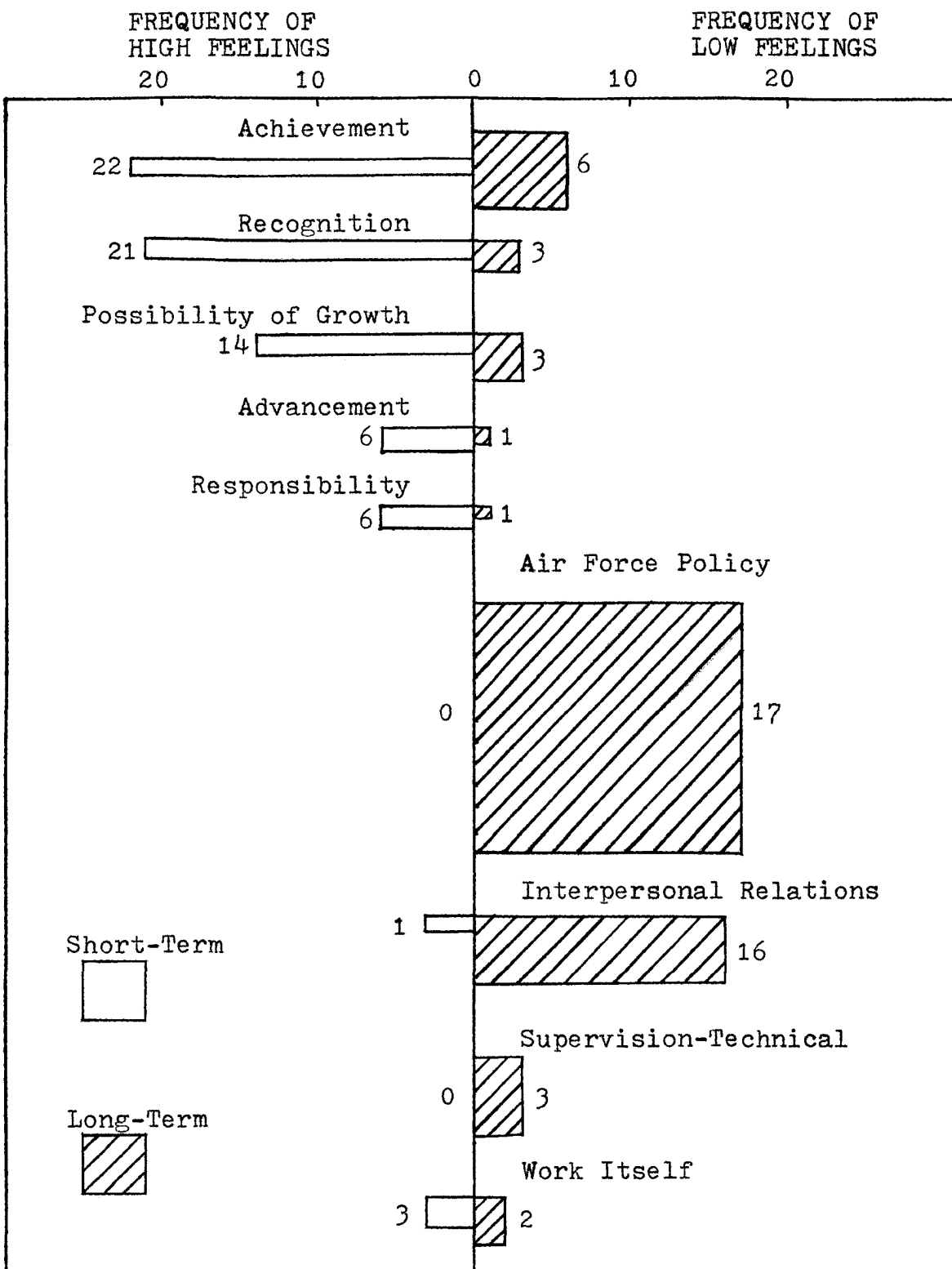


Fig. 1.--Comparison of satisfiers and dissatisfiers.

as the major factors involved in producing high short-term job attitudes. Their potency in producing low long-term job attitudes is also significant. In contrast, the factors of interpersonal relations and Air Force policy and administration represent the major long-term job dissatisfiers, and their capability in producing high job attitudes is rather small.

EFFECTS

The data supporting the effects of job attitudes is rather subjective. It is clear that there are no quantitative measures of changes in output in this particular job. Instead, the data on effects represent reports on the changes in work patterns as indicated by fairly precise and circumstantial accounts of the way in which these effects on productivity were perceived by the respondents themselves.²⁶ For example, here are two statements concerning the effects of attitudes upon performance:

"After busting the last standboard, I feel that I now maintain enough proficiency to get the job done, but nothing extra. I do not feel that a negative attitude makes me less proficient because I am still more proficient than a lot of crews even when despondent."

"After scoring the minimum grade possible to pass the test, and still being required to submit an RBI (reply by endorsement), I felt

²⁶Frederick Herzberg, Work and the Nature of Man (New York, 1966), p. 95.

disgusted. Punishment does not motivate me. I do not feel that my performance was poorer, but I know I was not as interested. I was also probably more bored than usual with my job."

There are two important findings from the data on performance effects (Table 5). It is apparent that the majority of both high and low sequences reported performance effects. The evenness in low and high totals indicates the negligible influences that positive versus negative attitudes have on job performance. This conclusion supports the contradictory nature of the relationship between morale and productivity. There were only three examples in which attitude changes did not occur in the anticipated direction.²⁷ All of these instances were in low sequences in which the respondents stated that they worked harder as a result of what happened in the sequence. It has occurred to the interviewer that in spite of specific questions directed to attitude effects (Appendix II), people are often reluctant to admit that their productivity is at all affected by their attitude. This is rather unusual, because it would seem logical that people would tend to screen out negative effects and emphasize the positive effects of their attitudes.²⁸

²⁷High attitudes would be expected to produce high productivity and conversely, low attitudes would be expected to produce low productivity.

²⁸Herzberg, Work, p. 130.

Also, there were five high sequences which reported no performance effects and only two low sequences that reported no effects. The no-effects tend to support the idea that in this job people are just as reluctant to admit that their productivity is increased as they are to admit that it is decreased by their attitude changes.

The second important finding was drawn from the fact that fourteen out of twenty-six high sequences were short-term. This is consistent with the factor findings in that performance effects were more short-term in the highs compared to lows which were evenly divided. It would seem then that attitudes that are more short-term have a greater tendency to affect performance than long-lasting attitude changes. Or, perhaps, the performance effects of long-lasting attitude changes are not so apparent as the performance effects resulting from short-term attitude changes.

The next important classification of effects is attitudinal as they relate directly to the Air Force (Table 6, Appendix I). As shown by the difference in totals, low job attitude changes are more closely related to negative feelings toward the Air Force than to positive feelings toward the Air Force. Also, contrary to the performance effects, the relationship between job attitude and attitude toward the Air Force is stronger in the lows than in the highs.

The second conclusion suggested by these findings is that negative attitudinal changes toward the Air Force are

more likely to result from long-term job attitudes than from short-term job attitudes. This would suggest that negative attitude changes are more potent than positive ones.

The kinds of reports that were coded in the mental-health category were limited to only two varieties (Table 7, Appendix I). The respondent complained either of increased tension or the loss of sleep, or reported a relief from tension. None of the twenty-six crew members interviewed complained about mental-health effects such as ulcers, severe skin disorders, twitches, or other psychosomatic problems. Also, none of the respondents were undergoing psychiatric treatment, nor did they appear to be in need of such treatment. Obviously, a complete mental-health diagnosis of each respondent was not within the scope of this study. Similar studies, however, have reported different mental-health phenomena such as angina and ulcers.²⁹ The absence of these casualties within the sample indicates that the population as a whole is composed of "successful" men. Since the data are sketchy, no further conclusions about job attitudes and mental-health effects could be made.

The interpersonal relationship effects yielded little conclusive data. There seem to be more effects on family relationships than on job relationships, but these are not significant (A.01 significance). It is rather difficult to

²⁹Herzberg, Motivation, p. 91.

say if the respondent could objectively perceive a change in how his job attitude affected his interpersonal relationships. A person's perception of himself probably depends more on his own psychological dynamics than actual fact.³⁰

SUMMARY

The results suggest the following job description. Achievement, recognition, possibility of growth and responsibility are the most important factors in producing job satisfaction for missile crews. Crew members are least motivated by the interpersonal relationships that they form through the job and by the actual tasks. Those factors that produce job satisfaction are rather temporary and short-lived in comparison to the factors producing dissatisfaction. Contrary to Herzberg's theory, lack of achievement or criticism and decreased possibility of growth are also dissatisfiers. Interpersonal relations and Air Force policy and administration are the most important dissatisfiers and produce long-lasting attitude changes.

An analysis of effects shows that performance is significantly affected by or determined by attitudes. Generally, positive job attitudes produce better performance and negative job attitudes produce poorer performance. However, a positive attitude is not any more potent than a

³⁰Ibid., p. 93.

negative one in relation to job performance. In fact, it is the short-term positive attitude changes that have the greatest effect on performance.

The attitudinal effects are a little more decisive and show that negative attitude changes produce negative attitudinal effects toward the Air Force which are long-lasting rather than temporary as the positive attitudinal effects.

What do crew members want from their job? It should be fairly obvious that this job is characterized by only a few satisfiers which produce temporary attitude changes and performance effects. These satisfiers are bidirectional and are, therefore, also dissatisfiers. The dissatisfiers all produce long-term attitude changes and appear to act in only one direction. The job seems loaded, therefore, in favor of dissatisfaction. Also, the frequencies of the two lowest factors of Air Force policy and administration and interpersonal relations were particularly high in comparison to other factors. In fact, not one sequence mentioned Air Force policy and administration as a factor in job satisfaction. The results are conclusive in showing the need for more lasting satisfiers that are intrinsic to the job. The study also clearly indicates the need for eliminating the low factors of interpersonal relations and Air Force policy and administration which tend to have rather pervasive deleterious attitudinal effects.

CHAPTER IV

CONCLUSIONS

A close analysis of the sample population for demographic differences in age, rank, education, and length of crew duty does not yield any significant variances. The sample consisted of officers between the ages of twenty-three and thirty-three. All were college graduates including many with graduate credits. They varied in rank between second lieutenant and major. Eighteen officers were between the ages of twenty-five and twenty-nine which accurately reflects the mean age of twenty-seven for crew members. Seventeen of the respondents were captains, most of whom were crew commanders. All of the second lieutenants and first lieutenants were deputies. The only demographic difference between individuals that showed a relation to the sequences was in the length of crew duty. Those crew members with over twenty-six months of crew duty had an average intensity reading of eighteen (Appendix II, question 12) in the low sequences. This compares to average intensity readings of fifteen for both the high and low sequences, with the average crew duty being twenty months. Evidently, the longer a person is on crew duty, the more intensely he is affected by negative attitudes. This is just the opposite from the situation on

most jobs, where it is the less experienced employees who are most sensitive to negative feelings about their job.³¹ There were no other significant correlations between the demographic differences such as a function of factors or effects in either high or low sequences. Because of the sample homogeneity and general lack of individual differences in the occurrence of factors and effects the applicability of the results of this study go beyond the immediate limits of the small sample.

This is, of course, only an inference and can be verified only with a larger sample. The job itself, however, has another characteristic that strongly supports this conclusion. The detailed tasks of Missile Duty are all rigidly standardized. The procedures as well as the equipment vary little from one capsule to the next and from one crew member to the next. For all practical purposes, during peacetime operations the areas of deputy and commander are identical. The only exception to this is in certain training and evaluations and, even there, each crew member must know the other's job in order to coordinate tasks. The combination

³¹Herzberg, (Motivation, p. 98) states that his survey of accountants and engineers showed that, "The younger and college-trained men more frequently mentioned the characteristic of the work itself as a reason for feeling bad than the older and noncollege-trained men." From this he concluded that the less experienced may be expected to be more sensitive to tedious and unfulfilling jobs. This study seems to contradict that conclusion.

of the homogeneous population and the rigidly standardized job, therefore, makes it possible to apply the conclusions of this sample to not only all Modernized Minuteman Crew Members at Malmstrom, but also the Minuteman Crews in general.

The broader implications of this study concern Herzberg's Duality Theory and the design. The results of the research show that job satisfaction is much more complex in its dimensional relations than postulated by the "dual factor" theory of dimensions of job satisfaction as satisfiers or dissatisfiers. The results showed that the unidirectional effect was truer of dissatisfiers than satisfiers and that particularly in the low sequences the dissatisfiers tended to "load" or accumulate on certain factors. The bidirectional tendency of the high factors plus this "loading" of the low factors in only one direction and the long-term nature of the low factors and effects indicate a much more complex dimension of job satisfaction than Herzberg's theory would suggest.³²

These results also suggest certain design defects. The central characteristic of the critical-incident as used by Herzberg only operates at the extremes of job satisfaction and dissatisfaction. A lot of middle attitudes, factors, and effects are lost, resulting in a somewhat distorted viewpoint.

³²W. W. Ronan, "Individual and Situational Variables Relating to Job Satisfaction," JAPM, LIV (February 1970).

The sequences in this study, for example, failed to reveal working-condition problems associated with the job such as forty-hour separation problems for newly married crew members, or poor food, or lack of sleep. Another defect is in the nature of certain factor definitions. Achievement, for example, was difficult to code without the other factor of recognition. Respondents also tended to mention achievement with success and interpersonal relation or superior-technical with failure. Few people admitted that they failed because of their own inadequacies, but rather tended to blame the inadequacies of others. The method also necessitated a rather impressionistic analysis of effects because the respondents were the only means of measurement.

The study design did, however, produce some rather important implications of this job in simple and rapid fashion. The study of the Factors-Attitude-Effects complex has produced an independent analysis of factors in the objective situation, of factors in the psychological reactions of the individual and of effects. The F-A-E complex is a good feature of this design and deserves further investigations.

Where do we go from here? Do the results suggest a method of implementation? If we accept Herzberg's concept of duality, then even the removal of the two largest factors in the low sequences will serve only to remove the impediments to positive job attitudes and will not produce positive attitudes. It is unlikely that such a factor as Air Force

policy and administration can be easily removed even if broken down into its components of SAC, Missile, Wing, and Squadron policies. Improvements in interpersonal relations offer the best opportunity; therefore, a concerted effort to eliminate confrontations between individual crew members and their supervisors and other senior officers might go a long way toward eliminating dissatisfaction. But perhaps the best plan would be to attack the central characteristic of the job itself. With organizational changes the job tasks could become more meaningful. Given greater peacetime authority, crew members could perceive greater responsibility and recognition. Continued efforts to provide positive long-term incentives such as easily discernible career progression, might produce positive long-term attitude changes.

Technology often creates worse jobs than it eliminates. Perhaps the monotony and tedium of Missile Duty cannot be alleviated, but closer attention to the job attitudes of crew members can provide important clues to their job motivations. To that end, this research study is offered.

APPENDIX I

TABLE 1A

Frequency of Each Factor Appearing
in High Attitude Sequences

N = 26		
Factor	Total*	Group
1. Achievement	22	I
2. Recognition	21	II
3. Possibility of Growth	14	III
4. Advancement	6	IV
5. Responsibility	6	
6. Interpersonal Relations	3	V
7. Work Itself	3	

*The frequencies total more than 26, since more than one factor can appear in any single sequence of events.

TABLE 1B

Frequency of Each Factor Appearing
in Low Attitude Sequences

N = 26		
Factor	Total*	Group
1. Air Force Policy and Administration	17	I
2. Interpersonal Relations	16	II
3. Achievement	6	III
4. Recognition	3	
5. Possibility of Growth	3	IV
6. Supervision-Technical	3	

*The frequencies total more than 26, since more than one factor can appear in any single sequence of events.

TABLE 2A

Distribution of Sequences Among the Six
Duration Categories in High Attitudes

Short-Range ¹ Short-Term ² Attitudes	14	
Short-Range Long-Term Attitudes	6	} 12
Long-Range Long-Term Attitudes ³	6	
Total	N = 26	

¹Range refers to sequence length.

²Term refers to attitude length.

³By definition a long-range sequence cannot include a short-term attitude, hence only the one category is shown.

TABLE 2B

Distribution of Sequences Among the Six
Duration Categories in Low Attitudes

Short-Range ¹ Short-Term ² Attitudes	3	
Short-Range Long-Term Attitudes	15	} 23
Long-Range Long-Term Attitudes ³	8	
Total	N = 26	

¹Range refers to sequence length.

²Term refers to attitude length.

³By definition a long-range sequence cannot include a short-term attitude, hence only the one category is shown.

TABLE 3A

Frequency of Each Factor Appearing in Long-Term
and Short-Term High Attitude Sequences

Factor	Duration of Feelings	
	Long*	Short
	N = 26	
1. Achievement	10	12
2. Recognition	8	13
3. Possibility of Growth	6	7
4. Advancement	3	4
5. Responsibility	3	4
6. Interpersonal Relations	1	1
7. Work Itself	2	--

*The column under Long includes the frequency of lasting attitudes resulting from both long-range and short-range sequences.

TABLE 3B

Frequency of Each Factor Appearing in Long-Term
and Short-Term Low Attitude Sequences

Factor	Duration of Feelings	
	Long*	Short
	N = 26	
1. Air Force Policy and Administration	16	1
2. Interpersonal Relations	13	3
3. Achievement	5	-
4. Recognition	2	1
5. Possibility of Growth	3	-
6. Supervision-Technical	5	-

*The column under Long includes the frequency of lasting attitudes resulting from both long-range and short-range sequences.

TABLE 4A

Interrelationships Among Most Frequent
Factors in the High Sequences*

		Percentage of Appearance	
Recognition	with	Achievement Growth	46 30
Achievement	with	Recognition Growth	44 28
Growth	with	Achievement Recognition	30 40
Advancement	with	Achievement Recognition Growth	26 36 26
Responsibility	with	Achievement Recognition Growth	33 26 26

*This table gives the percentage frequency with which the factors on the left occurred in sequences in which the factors on the right were also found.

TABLE 4B

Interrelationships Among Most Frequent
Factors in the Low Sequences*

		Percentage of Appearance	
Air Force Policy and Administration	with	Interpersonal	53
Interpersonal Relations	with	Air Force Policy Supervision	40 25
Achievement	with	Interpersonal	42
Supervision-Technical	with	Interpersonal	50

*This table gives the percentage frequency with which the factors on the left occurred in sequences in which the factors on the right were also found.

TABLE 5

Frequency of Performance Effects

N = 26		
	High	Low
Long-Term	4	7
Short-Term	<u>14</u>	<u>9</u>
Total	18	16

TABLE 6

Frequency Changes in Attitude Toward the Air Force

N = 26		
	High Positive Change	Low Negative Change
Long-Term	9	18
Short-Term	<u>7</u>	<u>4</u>
Total	16	22

TABLE 7

Frequency of Mental-Health Effects

	N = 26	
	High Improvement	Low Deterioration
Long-Term	3	1
Short-Term	<u>2</u>	<u>3</u>
Total	5	4

APPENDIX II

Job Attitude Interview

I want you to think of a time when you felt exceptionally good or bad as a missile crew member. Describe the event or sequence of events. It can be either a long-term sequence (affecting your attitudes over a long period) or a short-term sequence (a single event which affected you only over a short period).

1. How long ago did this happen?
2. How long did the feeling last? Can you describe specifically what made the change of feelings begin? When did it end?
3. Was what happened typical of what was going on at the time?
4. Can you tell me more precisely why you felt the way you did at the time?
5. Did these feelings affect the way you did your job? How? How long did this go on?
6. Can you give me a specific example of the way in which your performance on the job was affected? How long?
7. Did what happened affect you personally in any way? How long? Did it change the way you got along with people in general or your family? Did it affect your sleep, appetite, digestion, general health?
8. Did what happened basically affect the way you felt about working in the Air Force or Missiles, or did it merely make you feel good or bad about the occurrence itself?
9. Did the consequences of what happened at this time affect your career? How?
10. Did what happened change the way you felt about your profession? How?
11. How seriously were your feelings (high or low attitude) about your job affected by what happened?

On the following scale measure your intensity of feelings as a result of the preceding sequence.

Least	Average	Greatest
1 2 3	11 12 13	19 20 21

Note: 1 should be used for a sequence that hardly affected your feelings at all; 21 should be used for a sequence that affected your feelings as seriously as the most important events in your working experience.

12. Could the situation you described happen again, for the same reasons and with the same effects? If not, describe the changes that have taken place which would make your feelings and actions different today than they were then.
13. Any other comments? What did you think of the interview?

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